Just-In-Time

TEACHING GUIDE

UCDAVIS
Center for Educational Effectiveness
Office of Undergraduate Education

Just-in-Time Teaching Guide Table of Contents

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CREATING AN ENGAGING & INCLUSIVE ENVIRONMENT

Anti-racism

Charged Discussions as Learning Opportunities

Encouraging Student Motivation

Implicit Bias

Inclusive Practice

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Anti-racism Series
PART 1: Definition and Significance

Just as racial inequities and disparities permeate society, these inequities also appear on campuses, in curricula, and in classrooms. In his most recent book, *How to be an Antiracist*, Kendi defines an anti-racist[1] as: "One who is expressing the idea that racial groups are equals and none needs developing, and is supporting policy that reduces racial inequity" (2019, p. 25). Implicit in Kendi's definition of an anti-racist is the expectation of actually *doing* something. Neither inaction nor silence offer pathways to equity. He suggests, "...the only way to undo racism is to consistently identify and describe it – and then dismantle it" (Kendi, 2019, p. 9).

Why It Matters?
As evidence-based course design suggests, we should first seek to understand the characteristics of our learners in order to strategically plan our courses (Fink, 2005). Of particular relevance, Black, Indigenous, and People of Color (BIPOC[2]) is an inclusive term which highlights the identities and distinction between Black and Indigenous people, in contrast to other people of color. For more on where the term comes from, see this recent New York Times article. UC Davis is an increasingly diverse campus: approximately 77% of all degree-seeking undergraduate students (with known race/ethnicity) at UCD identified as other than White/Caucasian in Fall 2019 (UC Davis Student Profile, 2020). Of all US Citizen and Immigrant undergraduate students, 71.8% identified as BIPOC.

Taking Responsibility
As educators, we can intentionally infuse our professional practice with actions in support of anti-racist ideals. We can all contribute to this race and equity work, so that the entire burden does not fall solely on Black and Indigenous People of Color (BIPOC). Beginning with a vigilant self-awareness, we can interrogate our own experiences and unconscious biases (see Implicit Bias series), disrupting the privileges from which we may benefit. Reflecting on privilege, acknowledging racism and white supremacy (see Figure 1) can help keep focus on our anti-racist work.

Figure 1: Image Source: Safehouse Progressive Alliance for Nonviolence (2005). Adapted: Ellen Tuzzolo (2016); Mary Julia Cooksey Cordero (@jewelspewels) (2019); The Conscious Kid (2020).

[1] Throughout this resource, we have followed the spelling convention normative at UC Davis, which includes a hyphen. At times, we spell the term without a hyphen, to honor preferences of referenced authors.
[2] BIPOC is a fluid term (see Deo, 2021), chosen for this particular social context.

In taking responsibility for what we know and don't know, we must educate ourselves and strive for higher levels of cultural competence and humility (see Part 3 for resources). Becoming culturally competent is committing to the practice of cultural humility which involves continuous exploration of ones' own cultural beliefs and intersecting identities through self-reflection, and self-critique as a precursor to learning about, interacting appreciating and respecting different cultures; it is a process that requires humility (Tervalon & Murray-Garcia, 1998). Indeed, cultural competence is a life-long journey not a destination. We must then act to apply these new learnings to our course design and interactions in our classrooms.

Anti-racist classrooms should attend to our students' collective trauma in ways that address their experiences and cultivate a climate built to empower, uplift, and celebrate the differences. Decolonizing our curriculum (or questioning from whose perspective it is written), teaching history, and including scholarly contributions representative of the students in your course work toward these goals. Listening without judgment, addressing perceived slights, and actively engaging in and facilitating respectful and productive discussions that may feel uncomfortable, are ways we can take anti-racist steps in our classrooms (Simmons, 2019).

The Case of the Term - "Underrepresented Minority"

Some scholars recommend no longer using the term Underrepresented Minority or URM. As scholars argue, "Using the generic designation, URM, erases the unique and complex sociopolitical, sociohistorical, and sociocultural factors that contribute to the deeply entrenched inequities experienced across racially minoritized groups…" (McNair, Bensimon, & Malcom-Piqueux, 2020, p. 58). Some of the communities being named by URM may perceive the language as racist. "URM is degrading and dehumanizing because it divests racial and ethnic groups of the hard won right to name themselves." (Bensimon, 2016, p. 5). "Language is important because it reflects culturally acquired knowledge that forms the schemas of practitioners, leaders, policy makers, and others whose actions can make—or unmake—the anti-racism project in higher education" (Bensimon, 2016, p. 3). Similarly, it is important to recognize that our Asian students are not a monolithic group either. Recognizing unique and intersecting identities within groups can help to alleviate the potential burdens some of our Asian students may suffer from the "model minority" myth and its expectations. Dismantling the myth helps to highlight individual differences and pushes society towards racial justice for all (Blackburn, 2019).

To ensure that all students have the opportunity to be successful in the college classroom, it is important for instructors to consider the ways that their identities, and the identities of their students, are salient to teaching and learning. Classrooms are not culturally-neutral spaces as "students cannot check their sociocultural identities at the door" (Ambrose et al, 2010, p. 169-170). It is therefore crucial that instructors engage in pedagogical practices that acknowledge, celebrate and are inclusive of students who come from various backgrounds, experiences, and identities. Creating inclusive spaces within the classroom is a vital anti-racist enterprise that can help ensure equitable opportutnites exist for all students to thrive.

Beyond general inclusiveness (see Part 2), as anti-racists, we must specifically be aware of and attend to more. While we cannot necessarily dismantle the structural racism embedded in our institutions individually, we *can* collectively work towards the dismantling, one class and course at a time. We *do* have control over our courses and *are* singularly in charge of each of our classes. Therefore, we have the power within our classrooms to establish policies that either reproduce or reduce inequities. We *can* create environments with a focus on interpersonal interactions that challenges bias, confronts microaggressions, and facilitates uncomfortable and charged discussions that foster growth.

Microaggressions and Charged Discussions

A landmark study published in 2007 defined microaggressions as "brief and commonplace daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative…slights and insults" (Sue et al., 2007: p. 271). Microaggressions are often unintentional or automatic, come from well-meaning people, and may leave everyone involved uncertain about what happened.

While the research on microaggressions is ongoing (e.g., Bartlett, 2017, Lilienfeld, 2017), students, faculty, and staff on college campuses do report experiencing these daily "indignities" (Sue et al., 2007). Over time, microaggressions can inhibit the academic performance of students as they experience increased feelings of discomfort, self-doubt, isolation, and emotional exhaustion (Solorzano et al., 2000); undue

stress and feelings of exclusion (Yosso et al., 2009); hopelessness and even post-traumatic stress disorder (Nadal et al., 2011). Additionally, microaggressions can often be explained in ways that absolve the perpetrator of responsibility, implicitly delegitimizing the experience of the targeted person (Sue et al., 2007). This type of gaslighting, in which the person experiencing the microaggression is made to feel that they are imagining things or being "overly sensitive," can be just as detrimental as the microaggression itself (Sue, 2010). However, to be anti-racist in the classroom means that it is more important to center the experience of the person experiencing the microaggression rather than the intent behind the microagression.

Microaggressions can and do occur in the classroom. However, their occurrence can be an opportunity to stimulate potentially generative dialogues, though success in facilitating such conversations depends strongly on instructors' abilities to recognize and respond to microaggressions in the first place (Sue et al., 2009). Being anti-racist includes maintaining a vigilant self-awareness, educating yourself, and acknowledging racism and white privilege. It is imperative that when you see racism, you say something (Simmons, 2019). Recalling that anti-racism is rooted in *action*, below are some practical strategies to address (preventatively and responsively) microaggressions perpetrated in the classrooms:

Proactive Measures in the Anti-Racist Classroom

- Consider sharing the ways in which you have been conditioned by the circumstances of your life and society. Revealing yourself as (e.g., sharing instances where you may have demonstrated an implicit bias or where you've made mistakes but learned from them and made changes) will encourage students to take risks by sharing their experiences and thoughts, and communicates courage in approaching conversations about difference and relationality.

- Be willing to accept a different reality and truth than your own. It's likely that if you have a different background and circumstances than your students, the experiences, feelings, and views they share may not resonate with your own.

- Consider using micro-affirmations. "Micro-affirmations," (Rowe, 2008) are small acts of support that foster inclusion, listening, comfort, and support for people who may feel isolated or invisible in an environment. Using micro-affirmations can "communicate to students that they are welcome, visible, and capable of performing well" (Powell, Demetriou, & Fisher, 2013). Micro-affirmations can include making concerted efforts to use students' correct names, pronunciations, and pronouns, and rewarding positive behaviors.

- Anticipate "hot button" topics or comments. Identifying and considering your response to these "hot button" topics ahead of time will help you respond effectively in the moment (Goodman, 1995). Questions you might ask yourself include: what issues, comments, or points of view might provoke a strong personal response in you? In your students? What topics are currently charged on campus, in the news, on social media, or in our larger society?

- Be intentional and prepare questions/guides that facilitate thoughtful discussion. Discussion guides can also provide you with a way to engage students in critical discussions in constructive and appropriately challenging ways. Brookfield & Preskill (1999) identify types of questions that can keep discussions moving and focused on learning goals. Questions that ask for more evidence: e.g. "How do you know that?" Questions that ask for clarification: e.g. "Can you think of an example?" Open questions that require more than a yes or no response: e.g., "What did the author mean when she said…" Linking or extension questions: e.g. "How does your observation relate to what we discussed last week?" Hypothetical questions: e.g. "If this event had happened today, what role do you think the internet might play?" Cause-and-effect questions: e.g. "What is likely to be the effect of raising the average class size from 15 to 30 on the ability of learners to conduct interesting and engaging discussions?" Summary and synthesis questions: e.g. "What remains unresolved or under debate about this topic?" Consider that conversations need not always arrive at solutions.

Responsive Measures in the Anti-Racist Classroom

- Sometimes when charged topics come up unexpectedly in class, it is because a student makes a remark that is hurtful or offensive to others. Other times, it is simply an unexpected turn in a conversation. Either way, how an instructor responds can have profound implications for students'

experience (Sue et al., 2009; Goodman, 1995). In either case, it is good to address the comment promptly.

- Think ahead to what portions of your class might spark charged conversations. Consider your course content, and work to develop specific strategies for handling those moments. If you're stuck, this resource and others can help.

- Ask follow up questions, particularly if a student has made a comment that's potentially offensive or hurtful. This can help to clarify what they meant, which might not be what you heard (for suggestions with language, see Part 2).

- Ask students to freewrite for a few minutes about the issue. This can allow things to calm down, and give you some time to re-group. It's also a great way to emphasize the "teaching moment" such comments often present. Ask students to reflect on what they could learn from the conversation. Clarify what is inappropriate, however.

- Consider how best to address the comment or charged moment. Ignoring these comments can be tempting, especially if you feel uncomfortable, but that will send the message that such comments are okay. Instead, take pause and decide whether to address the topic as a class, address it with a small number of students outside of class, or address it in the next class meeting. Taking a deep breath and counting to 10 can be a useful way to decide slowly. If you decide not to pursue the discussion, you should still address the comment and say that you will return to it during the next class or outside of class. Then prepare in the meantime, and revisit the topic at the next opportunity.

- If you decide to pursue it, immediately legitimize the discussion. Avoid changing the subject or dismissing topics of race, ethnicity, gender, sexuality, citizenship status, disability, etc. as they arise (unless you are clear that you will return to the topic in the near future). This dismissal is itself a type of microaggression against some students.

- Use a direct approach to facilitating the discussion. Don't be a passive observer, or let the class take over the discussion. It is also important to avoid engaging in tokenism; students are not "representatives" speaking for an entire identity group, nor should their identity and/or experiences be leveraged to make up for your lack of comfort or knowledge. The A.C.T.I.O.N. Framework (Souza, Ganote, & Cheung, 2016) is one method for effectively responding to microaggressions in your classroom. This framework includes: Ask clarifying questions to assist with understanding intentions; Come from curiosity not judgment; Tell what you observed as problematic in a factual manner; Impact exploration; Own your own thoughts and feelings around the impact; Next steps (Souza, 2018). For example questions and comments associated with this framework, see this article.

- Acknowledge and respect the experiences and feelings of your students. Avoid questioning, dismissing, or playing down experiences and feelings that your students share about issues of difference and power. They are trusting you when they share their experiences and feelings.

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Anti-racism Series

PART 2: Strategies for the Classroom

This part of the series focuses on developing student-centered learning experiences and content, such as curriculum. It highlights anti-racist strategies to implement both in *what* you want students to learn (the content) and *how* you want them to learn it (the process). Antiracist pedagogy includes actively applying techniques to multiple dimensions of instructional practice – teaching practices, course curriculum, and class climate. A Community of Inquiry framework (where meaningful learning occurs through interdependent interactions between instructors, content, and students) can be helpful when designing anti-racist learning activities and instruction. The process of learning, whether face-to-face or online, can be sustained through an integrated system of presences: A *teaching presence* considers the student – instructor interactions; a *cognitive presence* focuses on student – content and resource connections; and a *social presence* attends to student – student interactions (Garrison & Arbaugh, 2007). This part organizes many more examples by each type of presence through an anti-racist lens.

Anti-racist Teaching Presence
An anti-racist *teaching presence* optimizes student – instructor interactions. Establish the instructor as engaged facilitator by: providing instructor or TA feedback on assignments, learning journals, or other reflective activities; administering surveys or questionnaires and using the results to inform future instruction; participating in discussion forums or chats; sending announcements to summarize the previous week or describe the next week; providing online office hours for teams and individuals; mentoring individual learners; or developing classroom community through "working agreements" that determine how that community will work together.

Instructors can model anti-racist practices and a commitment to dismantling existing patterns of privilege and white supremacy in their interactions with students in many ways (see part 1 for more):

- Ensure that you ask students to speak only for themselves, not on behalf of an entire group.
- Design learning activities that are more often cooperative, as opposed to competitive.
- Intentionally develop and structure group projects in which all students have an opportunity to participate and contribute. Assign project roles for students to assume, for example.
- Structure class interactions by providing goals, procedures, and processes to ensure they don't reinforce existing patterns of privilege.

When facilitating discussions with students, instructors can increase inclusivity of voices in many ways:

Action	Example Language to Use
Entering a discussion	"I invite you to share your ideas." or "What are you thinking about?"
Paraphrasing	"Let me see if I heard you correctly. You said…"
Clarifying	"Tell me more about…" or "Can you give me an example of that?"
Building on	"Does anybody want to build on what was said?"
Challenging	"I'd like to hear from someone who disagrees with that."
Acknowledging others	"That's a great point. I hadn't initially thought about that. Thanks for raising that.' Or "That's a good question, which I hadn't considered. I'm not sure of the answer right now. I'll have to think more about it."

Anti-racist Cognitive Presence
Next, build an anti-racist *cognitive presence* through student – content and resource connections. From relevant and strategic content to examples and visuals to web quests, design a course devoted to an exploration of diverse ideas. Strive to develop curriculum that models and reflects the diversity of our world.

Working to ensure that all students might see themselves reflected in course content signals that everyone's identity and group membership are valued and emphasizes the importance of considering multiple points of view on a topic. Diverse points of view can be incorporated through the examples used to explain course concepts, through diverse cultural references, and through diverse scholarly perspectives, among other examples.

Your anti-racist curriculum…

- Acknowledges, respects, and makes multiple identities visible and represented in course materials.
- Emphasizes the racial-ethnic diversity and backgrounds of experts who have contributed to your discipline.
- Includes diverse readings, videos, and visuals that acknowledge the contributions and experiences of BIPOC scholars through content—PowerPoint slides are a great place to include diverse examples.
- Is transparent-- clearly communicates expectations, learning objectives, assignments (see Tools for Revising/Creating your Own Transparent Assignments), and evaluation criteria (e.g., use of rubrics).
- Presents course material using a myriad of modalities (e.g., video, text, audio) to ensure greater student access.
- Seeks to understand the experiences and cultures of BIPOC students in order to plan learning activities that connect to prior knowledge.
- Acknowledges that decisions and interpretations are affected by who we are.
- Present counterstereotypes that change perceptions of who scholars/scientists are in your field (see Scientists Spotlights: Implementation Tips and Strategies). A range of activates and modes can help build counterstereotypes such as writing assignments (Schinske et al., 2016) and listening to podcasts (Yonas, Sleeth & Cotner, 2020).

Anti-racist Social Presence

Finally, establish an anti-racist *social presence* by focusing on student – student interactions. You can foster these in-person or online through: student-generated community expectations; discussions, collaborative tools and tasks (e.g., Think-Pair-Share, Team Projects, Jigsaw Activities); peer instruction and editing of work; or synchronous / asynchronous Q & A or discussion fora (Garrison & Arbaugh, 2007; Garrison et al, 2000). These types of interactions and learning platforms consider discourse, climate, and tone of the class environment.

Anti-racist climates…

- Provide opportunities to examine personal assumptions of a students' background, prior knowledge, and experience.
- Demonstrate high expectations for *all* students with an authentic belief that *all* can succeed.
- Learn and be able to pronounce all students' names and encourage them to address each other by name.
- Actively monitor for potential stereotype threat and broad generalizations.
- Create an environment prioritizing sense of belonging (e.g., where multiple groups feel "connected").
- Cultivate connections between students, the discipline, and scholarly and professional communities.
- Ensure that students have an awareness of and access to campus resources that support their unique identities.
- Maintain a classroom free from microaggressions and address microaggressions when they occur.
- Facilitate a space where all classroom exchanges are respectful (e.g., norm-setting, working agreement).
- Are transparent about instructor and student roles in the classroom, discussions, and activities and communicate them explicitly and consistently throughout the quarter (e.g., during the first day of class, in the syllabus, etc.).
- Acknowledge the unique identities, experiences, strengths, and needs of students, embracing student diversity as an asset and celebrating differences (e.g., a safe space where differences are not only respected, but also honored and valued).
- Invite students to approach instructors with concerns or ideas for inclusivity.
- Support the Principles of Community.

Increase inclusivity of student voices in their discussions with each other by first teaching them to:

Action	Example Language Students Can Use With Each Other
Enter a discussion	"I'm wondering about…" or "Let me throw out an risky idea…"
Paraphrase	"Let me see if I heard you correctly. You said…"
Clarify	"Tell me more about…" or "Can you give me an example of that?"
Build on	"I agree with that because…"
Challenge	"Looking at it from a different perspective…" or "I'm not sure I agree with that because…" or "I can see you point, but…"
Acknowledge others	"That's a great point. I hadn't initially thought about that. Thanks for raising that.' Or "That's a good question, which I hadn't considered. I'm not sure of the answer right now. I'll have to think more about it."

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Additional Resources

- For an Inclusive Pedagogy Framework from the Center for Integration of Research, Teaching, and Learning (CIRTL), visit this site.
- For a developmental approach for reflecting and intentionally creating a new assessment future which proactively includes all students, read this paper from the National Institute for Learning Outcomes Assessment.
- The Scientist Spotlight Initiative: https://scientistspotlights.org/ has a number of activities and assignments that allow instructors to integrate diverse scientific scholars into curriculum.

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Anti-racism Series

PART 3: Eight Actionable Anti-Racist Steps in the Academy

As described in Part 1, anti-racism implies intentional action. Simply put, to be anti-racist means to *do* something to address racial inequities. This part of the series compiles and annotates resources that can be used as a basis for pedagogical and scholarly action. They are organized and arranged by actions across modalities. The (*) denotes new additions to this updated version of the series, as of Summer 2021.

1. Think Critically About Academic Literature

Buchanan, N. (2020). Researching While Black (and Female). *Women & Therapy*, 43(1-2), 91-111.

- In this study, the author reflects on her own lived experiences as a mid-career tenured professor at a research-intensive institution. She explores tokenism and epistemic exclusion and provides suggestions for students navigating similar spaces.

* Lee, J. and Ramakrishnan, K. (2020). Who Counts as Asian. *Ethnic and Racial Studies*, 43: 10.

- This study explores the differences between how Americans understand and assign racial categories and how the Census Bureau defines and measures the Asian category.

Reddick, R., Bukoski, B, and Smith, S. (2020). (Cultural) Taxation Without Representation? How Educational Developers Can Broker Discourse on Black Faculty Lives in the #BlackLivesMatter Era. *To Improve the Academy: A Journal of Educational Development*, 39(1), 31-62.

- The study uses focus groups to investigate how Black faculty at an R1 university navigated their service and community experiences of invisible labor, called cultural taxation. Authors provide recommendations for educational programming that can support faculty from marginalized identities.

Settles, I., Buchanan, N., and Dotson, K. (2019). Scrutinized but not recognized: (In)visibility and hypervisibility experiences of faculty of color. *Journal of Vocational Behavior*, 113, 62-74.

- The study examines the token status of faculty of color (FOC) within the academy. Through analysis of data collected from 118 interviews, authors describe experiences of both invisibility and hypervisibility. It concludes with some suggestions as to how FOC can take back control of their own visibility or lack thereof.

Simmons, D. (2019). How to Be An Antiracist Educator. *ASCD Education Update*, 61(10).

- A social-emotional learning expert argues that instructors have a responsibility to address the consequences of racism, even if uncomfortable. She describes how educators can do this – teach for an antiracist future – in five actionable steps.

Kishimoto, K. (2018). Anti-racist pedagogy: from faculty's self-reflection to organizing within and beyond the classroom. *Race Ethnicity and Education*, 21(4), 540-554.

- The author synthesizes the literature on antiracist pedagogy to define and analyze its application to courses and professional lives. The paper describes the importance of self-reflection and the three components for effectively integrating the pedagogy.

* Chou, R., and Feagin, J. (2015). The Myth of the Model Minority – Asian Americans Facing Racism (2nd ed). New York, NY: Routledge.

- This revised edition adds to the literature about racial stereotyping and its gendered and sexualized nature. New interview data exposes the intersectionality of Asian American life and exposes the "double conscisousness" that many experience.

Phillips, K. (2014). How Diversity Makes Us Smarter. *Scientific American*, 311(4), 42-47.
- The author draws on research from organizational scientists, psychologists, sociologists, economists, and demographers to find that diverse groups are more innovative than homogenous groups. Diverse backgrounds bring new information, but interacting with diverse others also informs preparation and expectations.

Blackwell, D. (2010). Sidelines and separate spaces: making education anti-racist for students of color. *Race Ethnicity and Education*, 13(4), 473-494.
- The author argues that, while perhaps not intended, whiteness theory and identity politics often lead to the focus on white students and white educators. She describes antiracist education for students of color, using her own lived experiences as a black female graduate student.

Blakeney, A. (2005). Anti-Racist Pedagogy: Definition, Theory, and Professional Development. *Journal of Curriculum and Pedagogy*, 2(1), 119-132.
- The paper situates antiracist pedagogy within the sociological framework of Critical Theory. She argues for integrating antiracist pedagogy in the curriculum and for engaging in the professional development needed for effective implementation.

Wagner, A. (2005). Unsettling the academy: working through the challenges of anti-racist pedagogy. *Race Ethnicity and Education*, 8(3), 261-275.
- The author analyzes the pedagogical practices of an antiracist framework and specifically focuses on the process of learning antiracism. She then examines the efficacy of such practices to move away from the existing Eurocentric approach in higher education.

Cohen, G., Steel, C., & Ross, L. (1999). The Mentor's Dilemma: Providing Critical Feedback Across the Racial Divide. *Personality and Social Psychology Bulletin*, 25:10, 1302-1318.
- This experimental study describes the variation in responses of Black and White students to critical feedback. Authors analyze how stigma mediates these responses and provides suggestions for mentoring and other instructor-student interactions.

2. Read Timely Peer-Reviewed Journals

* Chan, E. (2020). Does diversity include me? Colorblindness and racial triangulation among Asian Americans on two college campuses. *Ethnic and Racial Studies*, 43:12.
- This study highlights how proportional representation is relevant for feelings of inclusion. It describes how students feel not included in diversity efforts.

Faeyi, O., Heffern, M., Sanders Johnson, S., and Townsend, S. (2020). What Comes Next? Simple Practices to Improve Diversity in Science. *ACS Central Science*.
- In this editorial, a range of authors in academia come together to highlight the biases in the sciences and to offer actionable steps to eliminate its structural prejudices.

* George, J. (2021). A Lesson on Critical Race Theory. *Human Rights Magazine*, 46:2.
- This article, offered through the American Bar Assoiciation's group on Civil Rights and Social Justice, succinctly describes Critical Race Theory as a practice of examining the role of race and racism in our society.

Gewin, V. (2020). The time tax put on scientists of colour. *Nature*, 583, 479-481.
- The author describes the pressures and costs that ethnic minority researchers endure to participate in campus diversity issues.

Gewin, V. (2020). What black scientists want from colleagues and their institutions. *Nature*, 583, 319-322.
- The author discusses how systemic racism in the science community frustrates and exhausts Black scholars and outlines steps for action.

Hofstra, B., Kulkarni, V., Munoz-Najar Galvez, S., He, B., Jurafsky, D., and McFarland, D. (2020). The Diversity-Innovation Paradox in Science. *Proceedings of the National Academy of Sciences*, 117(17), 9284-9291.
- This study analyzes three decades worth of US PhD recipients and their dissertations. The authors find a higher rate of innovation amongst underrepresented students, in contrast to majority

students, but also that the work is more likely to be discounted and less likely rewarded with academic positions.

* Lee, J. and Huang, T. (2021). Reckoning with Asian America. *Science*, 372(6537), 8.
  - In this Editorial article, the authors argue the importance of teaching the history of Asian Americans in order to reduce bias and increase inclusion.

Spikes, M. (2020). The pressure to assimilate. *Science*, 368(6498), 1506.
  - The author describes the lived pressures and experiences as a Black man in a STEM department.

Subbaraman N. (2020). How #BlackInTheIvory put a spotlight on racism in academia. *Nature*, 582, 327.
  - The author writes about the aftermath of two Black scholars who shared on social media their experiences of racism in their fields.

3. Keep Abreast of Contemporary Articles and Interviews

* What is the Model Minority Myth? (by Sarah-Soonling Blackburn in Learning for Justice)

Black Academia, it's time to move (by Buoy Analytics in Medium)

10 Ways for Non-Black Academics to Value Black Lives (by Stacey Chimimba Ault in Medium)

* I'm Tired of Trying to Educate White People About Anti-Asian Racism (by Nicole Chung in TIME)

Where did BIPOC come from? (by Sandra E. Garcia in The New York Times)

Give Black Scientists a Place in This Fight (by Adrianne Gladden-Young in The Atlantic)

'A severe toll': UC Davis professor Orly Clerge on racism in academia (by Caleb Hampton in Davis Enterprise)

An Anti-Racist Reading List (by Ibram X. Kendi in The New York Times)

* Who Counts as Asian, and What Counts as Anti-Asian Hate? (by Jennifer Lee and Karthick Ramakrishnan in Medium)

What Anti-Racist Teachers Do Differently (by Pirette McKamey in The Atlantic)

Opinion: 'To create lasting change, we must sustain this anti-racist work beyond the heat of the moment' (by Jennifer Rich in the Hechinger Report)

White Academia: Do Better (by Jasmine Roberts in Medium)

'Interrupt the Systems': Robin DiAngelo on 'White Fragility' and Anti-Racism (by Ari Shapiro on NPR)

Ten Simple Rules for Building an Anti-racist Research Lab (by Danielle Venton on KQED)

4. Watch Videos and Webinars

Book talk with Ibram X. Kendi. Scholar and author of "Stamped from the Beginning" and, more recently "How to Be an Antiracist" discusses his work on anti-racism at the hour-long Aspen Institute event.

Curated youtube playlist of stories from the film Cracking the Codes: The System of Racial Inequity.

Anti-blackness On Campus: Implications for Educators and Institutions. In this nearly two-hour long webinar, scholars from Peralta Community College District, UC Berkley, and San Diego State University describe concrete actionable steps that schools and universities can take to address anti-blackness.

* Asian Americans. This PBS series, told through personal stories, depicts the role of Asian Americans in U.S. History.

* Answering Your Questions on Critical Race Theory. This PBS Newshour features a live discussion with Prudence Carter, a professor in the Graduate School of Education at UC Berkeley.

* Anti-Racism: Applications to Higher Ed Pedagogy (UC Davis, Center for Educational Effectiveness)

* Foundations of an Anti-Racist Pedagogy (UC Davis, Center for Educational Effectiveness)

* Beyond 101: Addressing Racism and Microaggressions in the Classroom (UC Davis, Center for Educational Effectiveness)

* Check the Syllabus! Re-examining Our Syllabi with an Equity Lens (UC Davis, Center for Educational Effectiveness)

5. Listen to Podcasts

Imagine Otherwise Podcast (from Ideas on Fire an organization for interdisciplinary scholars)

Codeswitch (NPR podcast featuring fearless conversations about race, led and hosted by journalists of color)

* Stephen Brookfield: Teaching Race, White Supremacy, Digital Narratives, and the Anti-Racist Identity (from Psych Sessions: Convos About Teaching 'N Stuff)

* A Personal Antiracism Tool For People Who Think They're Allies (NPR podcast from the Life Kit series)

6. Explore Websites

* Talking About Race is a Smithsonian website from the National Museum of African American History & Culture. It describes types of racism (from individual to institutional to structural), integrates relevant video clips, and poses reflective questions for readers.

Open Collab Live is a site from the Open Learning & Teaching Collaborative out of Plymouth State University. This page includes anti-racist teaching resources such as books, articles, and syllabi.

Racial Equity Tools is a website that supports individuals working toward systemic and organizational justice with tools, tips, and curricula. The site is facilitated by the partnership of Center for Assessment and Policy Development, MP Associates, and World Trust Educational Services.

Remote DEI Toolkit is an online guide for Diversity, Equity, and Inclusion in remote settings. Established by the Remote DEI Collective, the site considers challenges, key considerations and insights, and concrete strategies to implement.

7. Check Out eBooks from UC Davis Library

Optimize CEE's partnership with our library by logging in via the VPN and downloading the entire book or individual chapters.

* Feldman, J. (2019). *Grading for Equity: What It Is, Why It Matters, and How It Can Transform Schools and Classrooms*. Thousand Oaks, CA: Corwin.

- The book argues grading's importance in a larger equity agenda. It offers strategies that challenge traditional grading with research-based evidence and teacher perspectives.

* McNair, T.B., Bensimon, E.M., and Malcolm-Piqueux, L. (2020). *From Equity Talk to Equity Walk: Expanding Practitioner Knowledge for Racial Justice in Higher Education*. Hoboken, NJ: Jossey-Bass Publishers.

- The book offers practical guidance and strategies for campuses to achieve equitable outcomes. Authors focus specifically on changes through a racial equity lens.

8. Investigate and Contribute to Crowdsourced Repositories

Please note that the resources below span multiple subjects on the matter and are not necessarily focused on teaching.

Anti-Racism Resources for White People (google doc)

Reclaiming STEM Statement on Black Lives Matter (google doc)

Scaffolded Anti-Racist Resources (google doc)

Shareable Anti-Racism Resource Guide (google doc)

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Charged Discussions as Learning Opportunities Series

PART 1: Establishing a Supportive and Inclusive Learning Environment

The prologue to the *UC Davis Principles of Community* states that, "UC Davis is a diverse community comprised of individuals having many perspectives and identities;" as such, "we recognize that to create an inclusive and intellectually vibrant community, we must understand and value both our individual differences and our common ground." Discussions about difference, power, inequality, and other charged topics can help students recognize and investigate their assumptions, develop new appreciation for differences, and lead to transformative learning experiences (Brookfield and Preskill, 1999; Kipp, 2008). But for such dialogues to be successful, a supportive and inclusive learning environment is necessary, as well as skillful facilitation on the part of the instructor (Sue et al., 2009). Without these elements, anger, hostility, silence, and breakdowns in communication can occur. The three parts of this resource series offer a guide to managing charged conversations in your classroom.

Establishing a Supportive and Inclusive Learning Environment
An inclusive and supportive learning environment is a key foundation for effective discussions about charged topics (Brookfield & Preskill, 1999; Goodman, 1995). Efforts to establish such an environment should begin on the first day of class. Here are a few ways to help all your students feel comfortable taking risks in class:

Strategies	Explanations	Teaching Suggestions
Incorporate "working agreements" into your classroom.	"Working agreements" can be formal or informal compacts developed by the classroom community that determine how that community will work together (Haskell, n.d.). You can generate working agreements as a class, or you can provide working agreements for your students' ratification. A few common working agreements fan be found to the right.	"No cross-talk" or no interrupting "Step up/Step back": students who usually talk a lot should consider speaking a little less and students who rarely speak in class can consider speaking up more. "Criticize ideas, not individuals" "Avoid assumptions" about any member of the class. "Three before me": after a student contributes in class, they should wait until three other students have spoken before they speak again.
Provide diverse points of view on course topics.	Working to ensure that all students might see themselves reflected in course content signals that everyone's identity and group membership are valued, and emphasizes the importance of considering multiple points of view on a topic.	Diverse points of view can be incorporated through the examples used to explain course concepts, through diverse cultural references, and through diverse scholarly perspectives, among other examples.
Consider using micro-affirmations.	"Micro-affirmations," (Rowe, 2008) are small acts of support that foster inclusion, listening, comfort, and support for people who may feel isolated or invisible in an environment. Using micro-affirmations can	Micro-affirmations can include welcoming facial expressions, making concerted efforts to use students' correct names, pronunciations, and pronouns, and rewarding positive behaviors.

	"communicate to students that they are welcome, visible, and capable of performing well" (Powell, Demetriou, & Fisher, 2013).	

Additional Resources
Make sure students know about campus resources, such as:

- AB540 and Undocumented Student Center
- Cross Cultural Center
- LGBTQIA (Lesbian, Gay, Bisexual, Trans, Queer, Intersex and Asexual) Resource Center
- The Student Recruitment and Retention Center
- Women's Resources and Research Center
- Community Advising Network
- Student Health and Counseling Services
- The UC Davis Principles of Community

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Kipp, B. (2008). What instructors can do to safely facilitate controversial discussion. In K. Landis (Ed.) *Start talking: a handbook for engaging in difficult dialogues in higher education* (pp. 30-32). Anchorage, AK: University of Alaska Anchorage. Retrieved from http://www.difficultdialoguesuaa.org/handbook/content/essay_what_instructors_can_do_to_safely_facilitate_controversial_discussion

Powell, C., Demetriou, C., & Fisher, A. (2013, October). Micro-affirmations in academic advising: Small acts, big impact. *The Mentor: An Academic Advising Journal.* Retrieved from https://dus.psu.edu/mentor/2013/10/839/

Rowe, M. (2008). Micro-affirmations and micro-inequities. *Journal of the International Ombudsman Association, 1*(1), 45-48.

Sue, D. W., Lin, A. I., Torino, G. C., Capodilupo, C. M., & Rivera, D. P. (2009). Racial microaggressions and difficult dialogues on race in the classroom. *Cultural Diversity & Ethnic Minority Psychology, 15*(2), 183–190.

Charged Discussions as Learning Opportunities Series

PART 2: Planning and Facilitating Charged Conversations

For charged conversations to be most effective, a great deal of planning is necessary (Brookfield & Preskill, 1999; Goodman, 1995; Kipp, 2008). This planning should account not only for the time during the discussion, but also before and after the conversation. In PART 2 of this resource series, we offer a few suggestions on what to do before, during, and after a charged conversation.

Before Discussions

Before engaging in a charged discussion with your students, you should consider why you're engaging in the discussion, and create clear guidelines for yourself and your students to help keep the discussion on track. Here are a few suggestions for what you can do to prepare for a charged conversation before class:

Strategies	Explanations	Teaching Suggestions
Define a clear purpose to focus your discussion and tie it to the course's learning outcomes.	Be sure to communicate this purpose to your students. Charged discussion topics are particularly well-suited to learning outcomes that focus on critical thinking and reasoning skills.	Topic examples may include understanding the complexities of a contentious social issue, analyzing the root causes for social conflict by taking a historical perspective, predicting possible implications or consequences of a conflict or policy, and/or developing recommendations for purposeful action in relation to an issue, among others.
Establish common knowledge in relation to a topic.	This will allow your discussion to focus on specific examples.	To establish common knowledge amongst yourself and your students, you can assign readings in relation to a topic and/or watch a video in class to prompt discussion. Another method is to identify what *students* would like to know about a topic, and list questions on the board that you can return to; this will help situate portions of the discussion that are speculative or otherwise lack common knowledge base.
Anticipate "hot button" topics or comments.	Identifying and considering your response to these "hot button" topics ahead of time will help you respond effectively in the moment (Goodman, 1995).	Questions you might ask yourself include: what issues, comments, or points of view might provoke a strong personal response in you? In your students? What topics are currently charged on campus, in the news, on social media, or in our larger society?
Prepare questions to guide the discussion.	This can help keep the discussion on track, and provide you with a way to redirect students should the discussion get too uncomfortable. To the right, Brookfield & Preskill (1999) identify types of questions that can keep discussions moving and focused on learning goals.	Questions that ask for more evidence: e.g. "How do you know that?" Questions that ask for clarification: e.g. "Can you think of an example?" Open questions that require more than a yes or no response: e.g., "What did the author mean when she said…"

		Linking or extension questions: e.g. "How does your observation relate to what we discussed last week?"
		Hypothetical questions: e.g. "Is this event had happened today, what role do you think the internet might play?"
		Cause-and-effect questions: e.g. "What is likely to be the effect of raising the average class size from 15 to 30 on the ability of learners to conduct interesting and engaging discussions?"
		Summary and synthesis questions: e.g. "What remains unresolved or under debate about this topic?"

During Discussion
During the discussion, your goal should be to keep the discussion on track, ensure that everyone is able to participate equally, and to affirm students diverse experiences. Here are a few suggestions:

Strategies	Explanations	Teaching Suggestions
Be an active facilitator, rather than a passive observer.	Be prepared to re-direct the conversation when it strays too far from its intended focus, and acknowledge some points as important but tangential.	You can write these comments or topics on the board and re-cap them at the end of class as topics to consider outside of class, so as to validate student contributions. Kipp (2008) suggests the following phrasing for redirections: "This is a great discussion so far, and I am sorry to interrupt, but we need to switch gears slightly at this point so we can be sure that the other sides of the issue are covered."
Accept students' different realities.	The different circumstances, backgrounds, and opportunities instructors and students bring to the classroom may influence their perceptions; therefore, students may experience the world differently than you do.	It's important to *affirm* rather than question students' experiences, particularly with issues of diversity and discrimination.
Vary the format of the discussion so all students can participate.	This can help ensure that all students have the opportunity to participate, even students who may not feel as comfortable speaking to the whole class.	Quotes to Affirm and Challenge: In small groups, ask students to bring in one quote from an assigned reading to affirm (because it is rhetorically effective, politically compelling, resonates with their experience, etc.) and one quote to challenge (because it is poorly expressed, ideologically problematic, contradicts their experience, etc.). Students then share their quotes in small groups, and each group is tasked with choosing one quote to affirm and one to challenge in a large classroom discussion.

		Circle of Voices: In small groups, allow all students one minute to respond out loud to a discussion question without interruption, with the option to pass. As the discussion moves forward from there, all the comments must refer back to one of the original comments.
Share examples from your own life.	This can help students see that "not knowing" and imperfection are part of the process.	Examples could include how you've learned unfair characterizations of people, internalized oppression, or made mistakes.
Affirm all students' contributions and experiences.	Even if a student is relating difficult experiences from a more privileged perspective, it's important to validate their contribution as this can enable them to be more open to hearing about others' experiences.	At the same time, it's important that students understand the difference between personal discomfort or feeling out of place, and systemic inequalities.
Acknowledge differences in communication styles.	Acknowledging the diversity of communication styles can help prevent potential conflicts.	The same discussion might feel angry to one person and engaging or exciting to another.

Wrapping Up Discussions
Finish the discussion in a way that reinforces what's been discussed, assesses students' experience, and is mindful of students' well being. This will help ensure students learn and retain the important concepts from class. Here are a few suggestions for how to wrap up the discussion:

Strategies	Explanations	Teaching Suggestions
Review the main topics covered in the discussion.	This will help ensure that everyone is on the same page, and that students can connect ideas from the discussion to larger course concepts.	One way to do this is to ask students to write their own re-cap and then confirm as a class the most important points.
Assess your students' experience.	Assessing your students' experience with the discussion can help you make sure that no one is leaving the conversation angry, and/or give you an opportunity to address students' concerns with the discussion in a later class.	The "Muddiest Point": Ask students to write down one point that's not clear to them. Students can turn this in on a notecard, or an online forum. The "Minute Paper": Ask students to respond to the following questions in one minute: "What is an important thing you learned today? What questions remain unanswered?" You can use your students' responses to guide your next lesson, and/or discuss them at the beginning of the next class.
Check in with students who seemed uncomfortable.	If you've observed students who looked uncomfortable during class but didn't speak up, check with them to see how they're doing.	You could remind them of your accessibility, via email and office hours, and invite them to come and talk to you about their concerns.

Debrief with a colleague after class if you've engaged in a charged conversation.	This can provide you with valuable feedback, support, and energy to continue.	Ask your colleague what they have done in their own class, and see what they think of how you handled the discussion.

Additional Resources

- Oxford Learning Institute's resource on Brookfield and Preskills' work.

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Charged Discussions as Learning Opportunities Series

PART 3: Responding When Charged Topics Come Up Unexpectedly

Sometimes when charged topics come up unexpectedly in class, it is because a student makes a remark that could potentially be hurtful or offensive. Other times, it is simply an unexpected turn in a conversation. Either way, how an instructor responds can have profound implications for students' experience (Sue et al., 2009; Goodman, 1995).

Strategies	Teaching Suggestions
Think ahead to what portions of your class might spark charged conversations.	Consider your course content, and work to develop specific strategies for handling those moments. If you're stuck, this resource and others can help.
Consider how best to address the charged moment.	Take a moment and decide whether to address the topic as a class, address it with a small number of students outside of class, or postpone it until the next class meeting. Taking a deep breath and counting to 10 can be a useful way to decide slowly. If you decide not to pursue the discussion, you should still address the comment and say that you will return to it during the next class or outside of class.
Ask follow up questions.	Ask follow up questions, particularly if a student has made a comment that's potentially offensive or hurtful. This can help to clarify what they meant, which might not be what you heard.
Have students free write about the topic	Ask students to freewrite for a few minutes about the issue. This can allow things to calm down, and give you some time to re-group. It's also a great way to emphasize the "teaching moment" such comments often present. Ask students to reflect on what they could learn from the conversation.
Depersonalize the comment if it's potentially hurtful.	You can do this by saying something like, "Thank you for raising that perspective. Many people feel that way, and you've given us an opportunity to talk about it. Why do you think people hold these views? Why do you think people who think differently feel that way?" Responding in this way can ensure that the student who made the comment won't feel singled out, and can help the class can connect the conversation to wider social issues.
Try to identify with the student who brought the topic up.	If a student expresses a view you used to hold, try to identify with them and relate how and why your perspective changed. *"I felt, I found, I feel"* is a good model. For example, you could say something like, "I used to think that way. I **felt** that ____ but then I **found** that ____. Now I **feel** ____".
Relate the comment back to course readings.	Say something like, "How do you think [insert the author of an assigned course reading] would respond to that statement?"
Relate the comment back to course concepts.	Say something like, "How does that viewpoint relate to [insert course concept]?"
Make a forward looking statement that affirms students' input.	Say something like, "I'd like to see if we might reach a better understanding about _____. I really want to hear your feelings and ideas about this and share my perspective as well."

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Encouraging Student Motivation Series

PART 1: Motivation in the Classroom

Motivation is perhaps the most critical non-academic factor to positively affect student performance on coursework (Ambrose et al., 2010; Lotkowski, Robbins, & Noeth, 2004). Increased motivation has been linked to increased academic achievement (Paulsen & Feldman, 1999), success in handling stressful situations (Struthers, Perry, & Menec, 2000), and better study skills (Robbins et al., 2004).

Intrinsic and Extrinsic Motivation
Ryan & Deci (2000) explain that sources of student motivation tend to fall into two broad categories:

- Extrinsic motivation: grades, degree requirements, competition, family pressure, incentives
- Intrinsic motivation: genuine interest, personal learning goals, relevance to learner

The various social and cultural contexts that a student experiences, from their personal background to the new contexts they encounter in the university, have the potential to affect the types of motivation they experience. Intrinsic and extrinsic motivation are also potentially reinforcing; research has shown that students who start out with solely extrinsic motivation for a course can develop intrinsic motivation as they gain competence in the subject matter (Hidi & Renninger, 2006). For underrepresented students, a recent study by Hernandez et al. (2013) indicates that a desire to develop competence rather than demonstrate performance (which is strongly related to intrinsic motivation) predicted increased GPAs for African-American and Latinx students. At the same time, social psychologists have argued that an approach that places undue value on intrinsic motivation may be tied too strongly to individualistic societies (Cohen et al., 2005).

How is motivation tied to relevancy?
Linking coursework to student interests can increase intrinsic motivation and help improve student performance (Ambrose et al., 2010). Emphasizing the relationship between coursework and students' daily lives, real-world tasks, or academic/professional lives can be especially motivating for students. Below are a few suggestions to help you get started:

Strategies	Activity Examples
Consider connecting material to students' existing interests. For example, you could link the topic to pop culture or current events.	American History example: *Discuss changing political campaign techniques between the past and present. Pull video excerpts from recent campaign speeches and have students identify the central issue being discussed and what type of persuasive technique is being used.*
Try to make course material real-world relevant. For example, you could create practical assignments that might be useful in daily life.	Engineering Example: *Ask the class how many bikes a UNITRANS bus can hold at full capacity and follow up with the question, "How would you most efficiently expand that number?"*
Illustrate how the material can transfer across subjects. For example, you could make explicit connections with other classes or areas of interest.	Psychology example: *Discuss memory structures in class and have students practice techniques to help improve memory. Ask students how these techniques could help them in their other classes, and prompt them to try the techniques in at least one other class and record their results.*

How can I demonstrate my enthusiasm for the topic?
Sharing your enthusiasm for a subject can inspire student interest and motivation to learn. Adopting a personable and engaging classroom manner can help pique student interest in coursework and help

students to meet learning objectives (Allen, Witt, & Wheeless, 2006). Students who have several positive interactions with faculty are more likely to have high levels of satisfaction with their college experience (Astin, 1984). Here are a few suggestions for communicating your enthusiasm positively to a class:

Strategies	Discussion Examples
Make yourself more approachable by sharing positive, relevant, and appropriate examples from your life with the class.	These examples should help to connect course concepts with the "real world" be demonstrating your own experiences with these concepts.
Consider starting a conversation with your students about what first attracted you to your field; then, encourage them to discuss what attracted them to the field.	Art example: *As a child, my favorite type of books to read were comic books. My favorite issue was by an artist who combined watercolor with photographs to create collages for each panel. I wanted to know how they'd done it, so I picked up a camera to start figuring it out. What drew you to photography?*
Make classwork active and engaging by switching up activities and lecture. This can help prevent your class from becoming monotonous.	Medical example: *Pass out cups of water - don't let students drink them! In some of the cups, place a few drops of one non-toxic chemical reagent. Ask students to form small groups and have one student pour a bit of their water into the others' cups. Switch up the groups and repeat three times. Walk around and place one drop of the trigger reagent in each cup. The cups that have been "infected" will turn red. Ask students to trace the path of infection and use this as a spring-board to discuss transmission vectors.*

Additional Resources

- On integrating effective classroom practices, visit the CEE teaching support website
- For academic technology support, visit either Academic Technology Services or EdTech Commons, a site designed to help support teaching with technology.
- For the TA handbook and instructional materials, visit the CEE's TA orientation webpage.

Citation

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Encouraging Student Motivation Series

PART 2: Teaching Strategies for Motivating Students to Attend Class & Complete Tasks

Motivation is perhaps the most critical non-academic factor to positively affect student performance on coursework (Ambrose et al., 2010; Lotkowski, Robbins, & Noeth, 2004). Increased motivation has been linked to increased academic achievement (Paulsen & Feldman, 1999), success in handling stressful situations (Struthers, Perry, & Menec, 2000), and better study skills (Robbins et al., 2004).

How can I encourage students to do the assigned readings for class?
Careful framing of reading assignments is an important way an instructor can encourage students to critically engage with course texts, and can influence how much effort students' devote to assigned readings. Below are suggestions you might consider incorporating into your course design, adapted from Bean (2011):

Strategies	Teaching Suggestions
Incorporate reading guides.	Reading guides can help students understand how to engage with difficult texts. Your guide could define key terms, explain necessary background knowledge and the reading's rhetorical context, and/or ask questions for students to consider as they read.
Establish relevancy for readings.	Establishing the relevancy of a reading can help students understand how a text relates to the rest of the coursework. One way you might do this is to consistently refer to specific aspects of the readings during lecture to directly tie the readings to class work. Another way could be to ask students to cite key concepts from course readings in their work.
Avoid summarizing in class.	Consider avoiding summarizing assigned readings during class, as this can send the message to students that completing assigned readings is not necessary.
Remind students that they are novice readers of scholarly works.	Let students know that scholarly publications are meant for a specialized audience, and that therefore it is natural to struggle a bit with the language and content. This gives them an explanation for the difficulty besides personal failing.
Share your own strategies.	Share your own reading, note-taking, and response writing strategies, and discuss how they differ among different genres of writing. Students may feel nervous when faced with academic reading assignment, and your strategies may help alleviate some of that anxiety.

Additionally, here are a few suggested assignments to encourage student engagement with readings:

Activities	Teaching Suggestions
Reading quizzes.	Online assessments or a brief pencil-and-paper or clicker quizzes at the beginning of class can help you quickly assess reading comprehension. If you want student to engage more critically with a text though, consider using assessments that require application or inference of central topics--this can encourage more deep reading and avoid sending the message that students should skim assigned readings for the "correct answers." (Bean, 2011)
Marginal notes approach.	Consider using a marginal notes approach, where students are encouraged to explain each highlight or underline they make in a text--for example, is it a

	particularly compelling piece of evidence? Something that is unclear? A key term? This strategy helps students to develop stronger reading comprehension skills as they actively engage with the text instead of just passively reading it. To bring this into the classroom, you could start class by asking students to read aloud from their marginal notes.
Says/Does activities	Says/Does activities ask students to closely analyze each paragraph of an assigned text by reflecting in writing on both what it says (a summary of the content) and what it does (its purpose or function within the article). This can heighten understanding of structure and encourage close reading.
Summary tasks.	Asking students to summarize a text can be one way to emphasize students' ability to separate main points from supporting details, and to encourage students to suspend their own judgements and focus on an author's points. Consider giving students the option to summarize the reading with a graphic organizer: a flowchart, diagram, concept map, or drawing. A popular addendum to this activity is to have a second short writing that responds to, argues with, questions, doubts or goes beyond the original reading.
Mock author interviews.	Ask students to write mock interviews with the author, in which they pose questions and the author responds from their particular intellectual standpoint.

How can I motivate students to attend class?
Class attendance has been linked positively to class grades, and is a stronger predictor of college GPA than standardized test performance or study skills (Crede, Roche, & Kieszczynka, 2010). Simply noting this to students is a simple way to promote attendance. Below are some suggestions for encouraging attendance:

- Low-stakes active learning activities can encourage student attendance. For example, short reading quizzes, think pair share activities, free writes, etc.
- Another option is to incorporate small-group activities into your classes. This will allow students to benefit from active learning techniques (Bligh, 2000; Prince, 2004) and provide an experience that is not available through webcasting/podcasting a missed lecture. Active learning has been proven to benefit students of all backgrounds across a wide variety of course topics and classroom settings (Freeman et al., 2014; Reimer et al., 2016).
- While small-group activities result in more interaction, the use of clicker questions can also be a useful form of formative assessment. Not only can you gain a better picture of your students' understanding, but this in-class work can also double as low-stakes participation activities.

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Encouraging Student Motivation Series

PART 3: Motivating Students through Feedback and Clear Expectations

Motivation is perhaps the most critical non-academic factor to positively affect student performance on coursework (Ambrose et al., 2010; Lotkowski, Robbins, & Noeth, 2004). Increased motivation has been linked to increased academic achievement (Paulsen & Feldman, 1999), success in handling stressful situations (Struthers, Perry, & Menec, 2000), and better study skills (Robbins et al., 2004).

How can I communicate clear expectations for student performance?
Students tend to perform better when they know what is expected of them and are given guidance on how to meet those expectations (Davis, 2009). Below are suggestions on how to set expectations in the classroom:

Strategies	Teaching Suggestions
Provide lesson objectives.	Try to provide learning objectives for each lesson that tell students what they will learn, and ensure that students are aware of these learning objectives and any assessments. You could do this by starting each class period with either a one-slide presentation of the day's learning objectives or writing the learning objectives on the board. An example from Linguistics might be: "Today we will be discussing morphemes. By the end of the class, you should be able to define what a morpheme is, differentiate free versus bound morphemes, and be able to generate examples of each type."
Make your expectations clear in the syllabus.	Use the syllabus to clearly define what students need to do to be successful in your class, and provide them with explanations, timelines, and additional resources for each assignment.
Post rubrics well in advance of due dates.	Whenever possible, post assignment grading rubrics for the students to peruse before starting the assignment. This allows students to evaluate their own work according to your expectations prior to grading and gives guidelines for improvement. Here are a few examples from Carnegie Mellon's *Eberly Center for Teaching Excellence and Educational Innovation*
Provide examples from previous students.	If possible, provide examples of successful student work along with rubrics. This can give students a model to reference as they work on their own project.
Tell them you believe they can meet your expectations.	In addition to communicating what the important learning objectives are, let your students know that you expect that they will meet these goals--you believe they can do it. This is especially important for underrepresented or underprepared students.

How can effective feedback help motivate my class?
Studies show that students tend to value feedback that is "timely, individualized and focused" (Hyland, 2013). Below are some suggestions on providing effective feedback:

Strategies	Teaching Suggestions
Practice effective feedbacking strategies.	Providing students with timely, task-specific positive feedback increases intrinsic motivation to learn and helps students stay on-task during classroom learning activities (Cameron & Pierce, 1994). For more suggestions on how to provide effective feedback to students, see our "Effective Feedback Series."

Avoid singling out specific students for praise or comparing one group of students to another.	Instead, praise the class as a whole for performance on tasks. For example, you could say: "Overall, the class did very well on the exam/problem set/writing assignment. I'm very pleased with your performance. If you weren't happy with your performance, please come see me and we'll work on a plan to help you get your grade to where you'd like it to be."
Provide individual written/verbal praise on specific assignments.	Individualized feedback helps the student to feel that they stand out and prevents feelings of anonymity. The Speedgrader tool in Canvas can help make the process of composing feedback easier as it provides a quick and direct way to give each student individual feedback and grades for work submitted online.
Ensure the feedback is returned is a timely fashion.	This encourages students to pay attentions to your feedback, and to incorporate that feedback into future assignments.

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Implicit Bias Series

PART 1: What Is It and Why Does It Matter?

Implicit biases are subconscious assumptions about people of different races/ethnicities, cultures, nationalities, religions, sexualities, gender identities, abilities, etc., that can influence how a person perceives of and/or interacts with someone else. Within a higher education context, these biases often appear in the form of harmful stereotyping, particularly when it comes to perceived academic ability, identity, or viewpoint (Ambrose et al., 2010). For example, some instructors may unconsciously believe that certain groups are not as capable as others, which may unconsciously influence classroom interactions.

Experts Define Implicit Bias

In their 2017 State of the Science Report, the Kirwan Institute defined implicit bias as: "the attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. Activated involuntarily, without awareness or intentional control. Can be either positive or negative. Everyone is susceptible." (Kirwan Report, 2017, p.10). Though implicit in nature, these biases do not necessarily align with explicit beliefs nor to positions we may explicitly endorse (Kirwan Report, 2015; Beattie, et al., 2013). All of us can engage in this type of "unthinking discrimination" without even being aware (Wilkerson, 2013). Still, a sizeable amount of research shows, implicit bias has the potential to impact behavior (Keng et al., 2012), yet is malleable and can be "unlearned" (Dasgupta, 2013; Roos, et al., 2013).

Implicit Biases, Inequalities, and Cognitive and Social-Psychological Processes

In society at large, inequalities are created and reproduced via two mechanisms: (1) the allocation of people to social positions and (2) an institutionalization of practices that allocate resources disparately across these positions. Massey (2007) explains how social classification operates on both a psychological and social level. Cognitively, we construct myriad categories in order to classify individuals. Our brains are wired to constantly evaluate and categorize the stimuli we regularly observe. The conceptual categories into which they are sorted are known as schemas. While this in-group / out-group sorting is mostly automatic and unconscious, our implicit biases generally favor the groups to which we belong (Reskin, 2005). Common forms of bias include race, gender, age, size, and ability. Unconscious bias can also arise from differences in religion, sexual orientation, social class, and hierarchical status in an organization.

Recent neuroscience research on implicit perception of social categories finds evidence to suggest that social perception works more as an interactive process, whereby visualizing signals the recognition of a social category which then activates higher level cognitive processes to connect to our own attitudes, beliefs, or stereotypes. Research has further shown that priming subjects can actually bias their initial perceptions (Cassidy & Krendl, 2016). Terbeck et al. (2016) investigated the role of norepinephrine — a stress hormone — in social cognition, both cognitively and physiologically via its connection to such basic emotions as anger, fear, and happiness. The authors found that these emotions, a byproduct of the release of norepinephrine, influence social judgments and thus may directly influence such judgments as implicit social attitudes and in-group bias.

Psychological work then plays out in the social world via boundary construction. Once established, boundaries are constantly negotiated and/or reinforced through interactions between in-group and out-group members. It is at this social-relational level that variation in status (both within and between groups) manifests. Status matters because beliefs about social differences can stabilize inequality, evoke perceptions of differences, and become a sustaining force. Widely-shared cultural beliefs exist for all types of social groups (e.g., social class, race, gender, educational level, age). They may lead to generalizations of worth and competence about groups but can also be misapplied to individuals.

Sociologist, Cecilia Ridgeway, asserts that these cultural status beliefs drive inequalities, first, by shaping expectations for ourselves and others and, then, through the resulting actions in social contexts (2014). Beliefs about social differences can bias evaluations (including self-evaluations) about competence and

behavior without much conscious awareness. They also bias associational preferences (potentially leading to segregated social networks), whereby both in- and out-group members tend to prefer higher-status groups. Lastly, inequalities can evoke resistance behaviors (e.g., higher-status groups defend their position) against members of disadvantaged or less-privileged groups.

Classroom Implications of Implicit Bias

Psychological and social-relational processes intersect in the classroom. Our unconscious and implicit biases become tangible and visible when they manifest themselves in actions or behaviors. For example, at the beginning of courses, certain students may be given priority positions as team leads or undergraduate research assistants based on privileged statuses (e.g., race/ethnicity, gender, etc.). The unconscious (or implicit) belief, while incorrect, is that more-privileged groups are more qualified. In this example, an instructors' implicit biases manifest and reproduce inequity in that their behavior reinforces the positions and status of more privileged groups. Another common example of implicit bias, when an instructor consistently calls upon male students, or students of a particular race/ethnicity, to respond to questions. Though the instructor may be unaware of their actions, their behavior suggests implicit bias related to male students, or students of a particular race/ethnicity—they speak with greater authority and have more important things to say—which disregards and marginalizes the contributions of other students. Like these examples illustrate, when behaviors are delivered in different ways to different groups, they contribute to inequities. Instructors and students both can demonstrate such behaviors or exhibit differential treatment. (For more on this, see our Microagressions series.)

The cumulative effects of any and all inequities can translate into both lasting and damaging effects in and out of the classroom:

- The potential and talent of all students is marginalized and under-utilized.
- Recruitment into specialized programs, research assistantships, and mentoring opportunities is reduced.
- Retention in classes or fields-of-study is affected.
- Creativity and growth are stifled.
- Team work and collaboration are inhibited.

Since both implicit and explicit beliefs, biases, and behaviors have potential to create new and perpetuate existing inequalities, it matters for our students that, as institutional gatekeepers who control access to potential future opportunities, we seek to examine our own beliefs, biases and behaviors. With a goal of minimizing the effects of implicit bias, part 2 of this series discusses how instructors can begin to counter biases internally and interpersonally. Part 3 describes ways in which instructors might extend these countering strategies to the classroom.

Additional Resources

- For training videos from UC Davis Human Resources, visit this site
- For resources and videos on Inclusive environments from Carnegie Mellon University, visit this site
- For more on unconscious bias from Vanderbilt University, visit this site
- For video and the Implicit Bias Module series from Kirwan Institute, visit this site
- To read more about micro inequities, visit this site

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Implicit Bias Series

PART 2: Creating Awareness and Reducing Implicit Biases

Our implicit cognition matters for our students, and so by its unconscious nature, it is a challenge to recognize and measure. Many are generally weak at introspection, so it is unsurprising that we are often unaware of our biases. Even when aware, research shows that self-reports of bias are both unreliable (Greenwald & Banaji, 2007) and often influenced by social desirability concerns (Amodio & Devine, 2009; Dasgupta, 2013). With such restrictions, researchers developed assessments that employ multiple methods, ranging from physiological approaches, to priming methods, to response latency measures (Kirwan Institute, 2015).

Recognize Your Own Implicit Biases

To interrogate your own implicit biases is to explore free tools developed by Harvard University's "Project Implicit." The Implicit Association Test (IAT) is one accessible method that measures associations between photos and words, conditional on response times. These tests may reveal your own subconscious assumptions about students that might unintentionally influence the ways you interact with them. Despite ideological debates related to implicit bias, a significant body of research substantiates the validity and reliability of the IAT (J. Kang & Lang, 2010). Being aware of our biases is the first step towards reducing bias, but what strategies help us to realize this goal?

Strategies to Reduce Implicit Biases

Given that implicit biases are socially conditioned, they are modifiable and can be unlearned. Much study has been dedicated to the process of debiasing, a term that researchers use to describe an approach to countering our existing biases. Debiasing works through deliberate and focused construction of new mental associations sustained over time (Devine, 1989). With repetition and training, research shows the newly learned implicit associations can stabilize (Glock & Kovacs, 2013).

Evidence suggests that the following strategies have particular potential for success:

- **Education efforts** aimed at creating awareness of our biases, such as those already underway in the fields of criminal justice and health care (Kirwan, 2015)
- **Counter-stereotypic (stereotype replacement) training**, when individuals are trained to create new associations through visual or verbal signals (Devine et al., 2012; J. Kang et al., 2012)
- **Exposure to counter-stereotypic individuals**, whereby new associations are built when individuals are exposed to counter-stereotypic images such as male nurses or female scientists (Devine et al., 2012; Dasgupta & Asgari, 2004)
- **Perspective taking,** when individuals consider alternative viewpoints and recognize a diversity of perspectives (Devine et al., 2012; Benforado & Hanson, 2008)
- **In-group and out-group contact**, where members of both groups are brought together in cooperative, rather than competitive, environments. Such intergroup contact tends to reduce intergroup prejudice (Devine et al., 2012; Peruche & Plant, 2006).

Underpinning all these strategies is awareness. Recognizing the implicit biases about your own students and understanding some basics about debiasing are essential first steps in creating an inclusive environment. Part 3 of the series describes practical ways to integrate some of these techniques into instructional practice.

Additional Resources

- For resources to counter bias (and links to videos for students) from University of Michigan, visit this site
- For UC Berkeley's Implicit Bias series, visit this site

- For more debiasing techniques, visit this site

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Implicit Bias Series

PART 3: Countering and Preventing Bias in the Classroom

Experts suggest many strategies for applying debiasing techniques to instructional practice. For more comprehensive lists of strategies, see this Tanner 2013 article on structuring the classroom and/or these University of Michigan checklists for inclusive teaching principles. Apapted from these resources, the following table organizes some of the techniques as applied to classroom climate, course curriculum, and teaching practices, respectively. (For more on this, see our Inclusive Practice series.)

Considerations for Countering Bias and Promoting an Inclusive Classroom Climate
• Examine your personal assumptions of the students' background, prior knowledge, and experience • Demonstrate high expectations for *all* students with an authentic belief that *all* can succeed • Learn all students' names and encourage them to address each other by name • Actively monitor your class for potential stereotype threat and broad generalizations • Create an environment prioritizing a sense of belonging (e.g., where multiple groups feel "connected") • Cultivate connections between students, the discipline, and scholarly and professional communities • Ensure that students have an awareness of and access to campus resources that support their unique identities • Maintain a classroom free from microagressions and address microagressions when they occur • Facilitate a space where all classroom exchanges are tolerant and respectful (e.g, norm setting) • Be transparent about instructor and student roles in the classroom, discussions, and activities and communicate them explicitly and consistently throughout the quarter (e.g., during the first day of class, in the syllabus, etc.) • Acknowledge the unique identities, experiences, strengths, and needs of your students, embracing student diversity as an asset and celebrating the physical and perceived differences (e.g., a safe space where differences are not only respected, but also honored and valued)
Considerations for Countering Bias in the Curriculum
• Acknowledge, respect, and make multiple identities visible and represented in course materials • Emphasize the range of identities and backgrounds of experts who have contributed to your discipline • Diversify readings, videos, and visuals so as not to marginalize students through content—powerpoint slides are a great place to include diverse examples • Be transparent through clear communication of norms, expectations, assignments (see Tools for Revising/Creating your Own Transparent Assignments), and evaluation criteria (e.g., use of rubrics) • Present course material using a myriad of modalities for greater student access • Plan learning activities that connect to students' prior knowledge and clearly communicate the learning objectives
Considerations for Countering Bias via Teaching Practices
• Ensure that you ask students to speak only for themselves, not on behalf of an entire group • Design learning activities that are more often cooperative, as opposed to competitive • Intentionally develop group projects where all students have an equal opportunity to participate • Structure class interactions by providing goals, procedures, and processes to ensure they don't reinforce existing patterns of privilege • Ask students to identify concrete observations about content (e.g., describe a photo, quote or diagram) before proceeding to analytical questions

Additional Resources

- For more teaching and learning resources from University of Michigan, visit this site
- For guidelines for discussing incidents of bias from University of Michigan, visit this site
- For an Inclusive Pedagogy Framework from the Center for Integration of Research, Teaching, and Learning (CIRTL), visit this site

Citation

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Inclusive Practice Series

PART 1: General Strategies for Constructing an Inclusive Classroom Space

UC Davis is an increasingly diverse campus. Approximately 60% of all degree-seeking undergraduate students at UCD identified as a race or ethnicity other than White/Caucasian in Fall 2017, with at least 26% identifying as underrepresented minority students, and approximately 16% as international visa-holders (see Figure 1), the majority (about 70%) coming from China. Approximately 59% of students identify as women and 44% as first-generation college students. UCD also enrolls a number of LGBTQIA+- identifying students and students who are differently-abled.

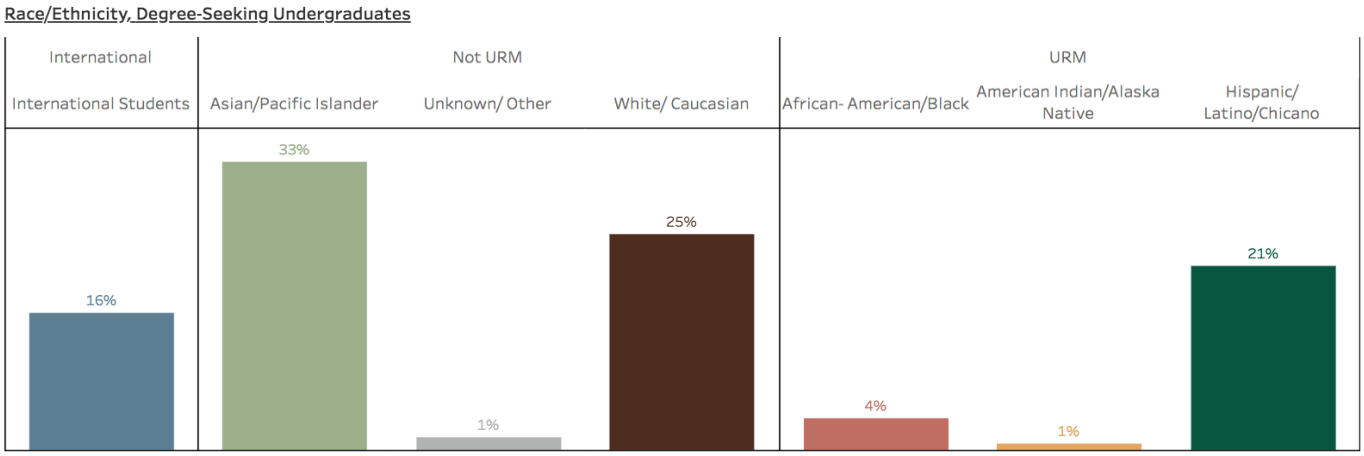

Figure 1: Fall 2017 UC Davis degree-seeking undergraduate students by race/ethnicity. Note: While Pacific Islander students are considered underrepresented minorities (URM), it is not currently possible to disaggregate data for these students from the larger category of "Asian"--thus they are incorrectly reported as "not URM."

Classrooms are not culturally-neutral spaces as "students cannot check their sociocultural identities at the door, nor can they instantly transcend their current level of development" (Ambrose et al, 2010, 169-170). It is therefore crucial that instructors engage in pedagogical practices that acknowledge and are inclusive of students with various backgrounds, experiences, and identities. Creating inclusive spaces within the classroom is a vital enterprise that can help ensure that all students have equal opportunities to thrive. This resource series will provide classroom instructors and GSIs with strategies and suggestions for engaging in inclusive pedagogies, and creating inclusive spaces for your students both inside and outside the classroom.

Start Here: Recognize You Own Implicit Biases

Implicit biases are subconscious assumptions about people of different races/ethnicities, cultures, nationalities, religions, sexualities, gender identities, abilities, etc., that can influence how a person perceives and/or interacts with someone else. Within a higher education context, these biases often appear in the form of harmful stereotyping, particularly when it comes to perceived academic ability, identity, or viewpoint (Ambrose et al., 2010). For example, some instructors may unconsciously believe that women are not as capable as men in STEM subjects, which can influence how they interact with women in their classrooms (Handelsman, Miller, & Pfund, 2007; Kahn & Ginther, 2017).

Recognizing your implicit biases about your own students is a crucial first step toward building an inclusive curriculum and classroom space (Harper & Davis, 2016). One way to interrogate your own implicit biases is to explore free tests developed by Harvard University's "Project Implicit." These tests may reveal your own subconscious assumptions about students that might unintentionally be influencing the ways you interact with them. Harper & Davis (2016) also recommend that instructors "acquire racial literacy and learn new teaching methods"--see *Additional Resources* at the end of this document for a list of sources that can inform this process.

Best Practices for Building an Inclusive Classroom and Curriculum

Ambrose et al. (2010) note that in addition to acknowledging and being inclusive of students' identities and backgrounds, thinking critically about how your course climate promotes or hinders student learning is important in any classroom. Course climate is subject to a host of different interacting factors, including "faculty-student interaction, the tone instructors set, instances of stereotyping or tokenism, course demographics…student-[to]-student interaction, and the range of perspectives represented in the course content and materials" (Ambrose et al., 2010, p. 170). Here are a few best practices for designing inclusive course spaces:

Strategies	Explanation	Examples/Suggestions
Examine your own assumptions about students' prior knowledge and experience	It is important to examine your own assumptions about your students' prior knowledge or experience. Do not assume that students share the same cultural or historical frames of reference as you or each other as this is often not true. Doing so can be unintentionally alienating to particular students while also putting them at a disadvantage in comparison to peers (Ambrose et al., 2010).	International or recent immigrant students often lack prior knowledge of US history, culture, and/or idioms that many of their domestic peers may already have. Some domestic students, however, may also lack such knowledge, particularly those from different racial, cultural, or socioeconomic backgrounds. It is important to consider these factors when designing assignments or exam questions, or when developing examples during lecture or discussion. This can include lecture examples that reference US popular culture, or exam questions or assignments that require that students have background knowledge in elements of US culture or history that have not been explicitly taught in class.
Diversify readings and course materials to avoid marginalizing students through content	Because of the historic privileging of white, middle-to-upper class men within higher education and broader US culture, many students rarely, if ever, are able to meaningfully engage with course materials or readings authored by individuals who share their race/ethnicity, gender, sexuality, ability, etc. Over time, this can be marginalizing and alienating, contributing to a potential disconnect between school and community life for these students (Harper & Davis, 2016).	Choose readings, materials, or examples that are inclusive of authors with diverse backgrounds, and include these in your syllabus, assignments, and lectures. You can also purposefully highlight the accomplishments of diverse scholars and experts--for example, highlighting the work of scientists of color or female scientists, signaling to students of color and female- identifying students that they belong in STEM. Consult with subject librarians at UC Davis in your content area to find materials from diverse scholars to incorporate into your class.
Avoid asking individual students to speak for an entire group	Instructors often unintentionally tokenize students during class discussions or in their feedback on assignments. Tokenizing can include expecting particular students to have expertise about issues that stereotypically impact their communities, or asking these same students to speak on behalf of their entire race/ethnicity, nationality, religion, sexuality, gender identity, ability, etc.. According to Ambrose et al. (2010), being tokenized may "disrupt students' ability to think clearly, be logical, solve problems, and so on" (p. 182).	Tokenism often arises because instructors or peers may unconsciously assume that all students of a particular identity group have had the same experiences. For example, asking an African American student to talk about growing up poor in the inner city assumes both that all African Americans are poor and that they all live in the inner city. Avoid asking a student to serve as a spokesperson for their entire community and/or putting them in a position in which they feel forced to teach you or their peers about their presumed identity group (Harper & Davis, 2016).

Be Aware of Stereotype Threat

Coined by psychologist Claude Steele, the term "stereotype threat" is defined as "the threat of being viewed through the lens of a negative stereotype, or the fear of doing something that would inadvertently confirm that stereotype" (Steele, 1999). A clear example of stereotype threat comes from Steele and Aronson's (1995) original study in which black and white students were sorted into matched (i.e. similar ability) groups by SAT scores and assigned a task to complete. The experimental group was told they were taking an intelligence test, potentially activating the stereotype that black students are less intelligent than white students. The same test was described to the control group as a problem-solving task. Under these conditions, researchers found that black students in the experimental group performed worse than their white peers, while black and white students in the control group performed at equal levels.

Example of stereotype threat are not limited to experimental conditions. Within a classroom, instructors may, in an effort to comfort or support struggling students, inadvertently activate students' sense of stereotype threat by communicating low expectations of their abilities. For example, telling a student of color that "it's okay, some people just aren't good at math," can communicate both that you have low expectations of them and that you believe abilities are tied to uncontrollable attributes like race. This can limit students' self-efficacy (i.e., their belief in their own ability to be successful), making it harder for them to stay motivated (Ambrose et al., 2010; Rattan, Good, & Dweck, 2012).

To avoid triggering stereotype threat, instructors are encouraged to cultivate a "growth mindset" with students by emphasizing that neither intelligence nor ability are fixed, but can grow over time with practice. Building in low-stakes quizzes or homework into your course, so that students can build skills and receive feedback on their performances over time, is one way instructors can go about this (Dweck, 2008). Communicating that you have equally high expectations of all students and believe they can all meet these expectations is also important, and can help students develop self-efficacy and motivation in your class (Ambrose et al., 2010).

Additional Reading and Research Resources

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Additional Campus Resources

- UC Davis Office of Campus Community Relations

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Inclusive Practice Series

PART 2: Inclusive Strategies for Supporting Women in the Classroom

Over the last few decades, the number of enrolled students who identify as women has increased substantially at postsecondary institutions; in fact, as of 2015 the majority (over 56%) of students enrolled in US post-secondary institutions identified as women (NCES, 2018). However, despite their increased presence on college and university campuses, women still face many obstacles in attaining postsecondary degrees, particularly in STEM-related disciplines, due to unconscious gender norms in academic cultures (Blackburn, 2017; Kahn & Ginther, 2017; Master, Cheryan, & Meltzoff, 2016; Stoet & Geary, 2018). As a result, fewer women and minorities decide to pursue STEM-related disciplines. For example, the National Science Foundation (2017) reports that women account for only about:

- 18% of undergraduate computer science majors,
- 20% of undergraduate engineering majors,
- and approximately 19% of undergraduate physics majors.

Additionally, women from underserved minority communities continue to face a double bind in exclusion from STEM fields as both women and persons of color, both in absolute numbers and proportionally when compared to their total population in the US (Blackburn, 2017; Malcom & Malcom, 2011; Ong, Wright, Espinosa, & Orfield, 2011). Also, students who do not self-identify in binary gender terms, but rather self-identify as gender-variant, or transgender, are particularly vulnerable to exclusion in environments where gender norms are unquestioningly accepted as part of the academic culture.

As part of our series on Inclusive Practices, this resource will provide classroom instructors and GSIs with strategies and suggestions for supporting women, both in and out of the classroom. Note: the strategies below also promote general inclusivity, regardless of gender identification, but may be particularly relevant for those who identify as women.

Best Practices for Including Women in the Classroom

Strategies	Explanations & Examples
Avoid engaging in culturally-held stereotypes of women's abilities	Research suggests that while women generally perform as well as men in science and math (Stoet & Geary, 2018), culturally-held stereotypes that suggest women are not as competent as men in STEM-related disciplines persist (Blackburn, 2017; Kahn, & Ginther, 2017). Kahn and Ginther (2017) found that not only did this stereotype manifest early in children's images of themselves as learners, but teachers often unconsciously held this belief as well. This bias can also manifest itself as instructors attempting to be supportive by unconsciously holding women to lower standards than their male counterparts or having lower expectations of women's abilities.
	It is important to recognize and challenge your own implicit bias, and the assumptions and beliefs you may hold about women as learners (for more on engaging with implicit bias, see Part 1). Research also suggests that emphasizing a "growth mindset" (Dweck, 2008) that suggests that intelligence and ability are not fixed but rather grow over time can help to limit women's experience of stereotype threat (see Part 1 for more on stereotype threat) and improve their performances, particularly in math and science (Kahn, & Ginther, 2017).
Create an environment that builds women's sense of belonging	Particularly, in STEM-related disciplines, women can often struggle to feel as though they fit or belong in the classroom (Blackburn, 2017). For example, Master, Cheryan, & Meltzoff (2016) found that when traditional stereotypes about computer science were emphasized, students who identified as women reported lower sense of belonging, or the sense that they would fit in with both other people and the

	activities and materials common to that environment (Master, Cheryan, & Meltzoff, 2016), as well as less interest in taking future computer science classes. On the other hand, Shin et al. (2016) and Herrmann et al. (2016) found that female-identifying STEM majors reported a higher sense of belonging after reading the biographies of successful women in STEM (Shin et al., 2016) and after receiving letters from female role models in STEM fields (Hermann et al. 2016).
	Master, Cheryan, & Meltzoff (2016) suggest avoiding engaging with traditional stereotypes about who belongs in your discipline by diversifying your course content and curriculum. For example, highlighting the achievements of women scholars and/or including course readings or materials written by women may help communicate to those who identify as women that "they are welcome and belong in this environment" which may increase their interest in taking further classes in that field (p. 435). You might consult this handout, which highlights 16 women who have made important contributions to a variety of science fields. You could also have students investigate the research profiles for female Nobel Laureates: for example, here are the profiles for Elizabeth Blackburn and Francoise Barre-Sinoussi. Consider also using examples where the engineer or scientist is from an underrepresented community and/or gender neutral. For example, when showing generic pictures containing humans, integrate images women and people of color. Additionally, try constructing activities or assignments that help students to personalize the content of your course, for example by having them engage with content from diverse role models in STEM fields--this can be encouraging to students who do not clearly fit the traditional mold of members in the field by allowing them to "see" their potential future selves in those role models. This does not mean lower expectations, but rather ensures that all students are given an equitable opportunity to participate in the classroom community and to connect course content to their own lives.
Consider that your office hours may be intimidating for students, especially women	For a variety of reasons, students often feel nervous or anxious about attending office hours (Weimer, 2015). This is a feeling that can be heightened for women who may already be concerned about how they are perceived, particularly by male faculty. Further, the unequal power dynamics that are always at play when faculty and students interact one-to-one can be exacerbated for women by already existing unconscious, gender-based power differences. This fear can result in students forgoing help when they are struggling in class, particularly if they are unaware of other resources that they can access for support. Additionally, students may feel even more intimidated when office hours are only held by appointment, as opposed to being planned, consistent events. Consider holding consistent office hours that are posted in the syllabus, on Canvas, and outside of the physical office door.
	Emphasize your availability for mentoring and support during office hours. At the same time, you can provide students with information about outside resources (see Additional Resources below). Another option is to consider holding office hours in a consistent, public location (such as the library or a coffee shop on campus). Students can meet you individually or in groups to discuss course matters--in fact, encouraging students in your class to come to group office hours, even if they don't have specific questions can help shyer students build the confidence to begin asking questions. All of these alternatives can ensure that students still receive support in their learning.
Consider limiting competition between students within your curriculum	In their extensive review of the literature, Niederle & Vesterlund (2011) found that women and men differed in their preferences toward competition, with men preferring competitive environments and women preferring to avoid them. Research findings indicated that one likely explanation for this difference was that "men tend to be more confident in their abilities than women" (p. 625). As college classes often employ competition as a means of motivation, this can put those who identify as women at a disadvantage, and students from underserved populations as well (Blackburn, 2017; Niederle & Vesterlund, 2011).

	Additionally, competition, particularly in grading practices (e.g., norm-referenced or curved grading), can be detrimental to all students' abilities to learn and retain information, and has been shown to be a contributing factor to the loss of students from underrepresented communities in STEM fields (Schinske & Tanner, 2014). Niederle & Vesterlund (2011) contend that while the clearest solution would be to socialize women to be more competitive, "it is important to ask whether competitiveness, generally speaking, is a desirable attribute" (p. 626). Hyper-competitiveness can be detrimental in collaborative settings, and more broadly. Tinto (1997) found that when students were encouraged to build supportive and collaborative peer networks, academic engagement increased among all students. Designing your course around collaboration and cooperation, as opposed to competition among students, could help boost both men and women's confidence in their abilities, especially if instructors emphasize that all students have valuable contributions to make.
Be deliberate when designing group projects to ensure equal opportunities for participation	Research on collaborative learning activities suggests that women often experience stereotype threat, feel less accepted, and actually experience less acceptance by their group members when working with men as opposed to women (Grover, Ito, & Park, 2017). This can be especially problematic in STEM fields, where men tend to outnumber women, making it more likely for groups to be male-dominated. Grover, Ito, & Park (2017) suggest that considering gender in group composition, which may include ensuring that women are grouped with at least one other student who identifies as a women either by altering group composition when possible, or creating larger groups, can help to mitigate stereotype threat. Avoid constructing groups with only one women or one person from an underrepresented community. It is also important to emphasize that all group members' contributions are valuable and promote positive interpersonal communication between students. Setting ground rules for group interactions, members' conduct toward each other, and assignment completion can also help ensure that all students are treated fairly (Ambrose et al., 2010). Consider building in structures that facilitate equal participation and shared workload. For example, you could designate particular roles for each individual student (e.g., group recorder, discussion leader, data analyst, etc.) or have students choose to be responsible for particular parts of a cooperative assignment. Make sure that students have a chance to experience a variety of project roles by having them regularly rotate with their peers--this is especially important for women who are often defaulted to the less technical roles in group activities.

Additional Resources

There are a number of resources for both academic and emotional support available to women on campus. Many of these resources are directed by the Women's Resources and Research Center [WRRC], including:

- W.I.S.E.: Women in Science and Engineering Program
  - W.I.S.E is a mentoring program for women in STEM-related disciplines. The program pair undergraduates students with graduate student mentors in STEM. For more information, email wrrc@ucdavis.edu.
- STEM Cafe
  - According to the WRRC website, "STEM Cafe is a free tutoring service that seeks to create an inclusive space for womxn, trans*, nonbinary, and gender expansive scholars to receive support in Math and Chemistry." The program starts the second week of the term and runs until finals week, and all tutors are upper-level undergraduate students and graduate students in science and math. For more information, email wrrc@ucdavis.edu.

Other on-campus and national resources include:

- ADVANCE UC Davis, Mentoring Resources
  - Resources for both mentors and mentees developed by ADVANCE UC Davis, and initiative on campus to support STEM education for underrepresented groups.
- UC Leads: Leadership Excellence Through Advanced Degrees
  - UC LEADS is a two-year program designed to identify educationally or economically disadvantaged undergraduates in science, mathematics or engineering who show promise of succeeding in doctoral degree programs.
- McNair Scholars Program at UC Davis
  - The McNair Scholars Program is designed to prepare undergraduate students for doctoral studies through involvement in research and other scholarly activities. McNair participants are either first-generation college students with financial need, or members of a group that is traditionally underrepresented in graduate education and have demonstrated strong academic potential.
- BUSP: Biology Undergraduate Research Program
  - BUSP is an intensive enrichment program for undergraduates who have a strong interest in undergraduate research in biology. BUSP students enroll in a specially designed, rigorous academic program during their first two years of college, can work in a biology research laboratory during their sophomore year, and meet regularly with skilled advisers who offer academic guidance and personal support.
- Student-Run Health Clinic Opportunities
  - Medical students, typically in their first or second year, and undergraduates have the opportunity to receive course credit by staffing student-run health clinics in the Sacramento area. These clinics are important avenues for women in resource sharing on and off campus and can provide networks for peer mentoring.
- UC Davis LGBTQIA Center's Guide to Pronouns
  - According to the LGBTQIA Center: "Pronouns are linguistic tools that we use to refer to people. (i.e. they/them/theirs, she/her/hers, he/him/his). We believe that it is important to give people the opportunity to state the pronoun that is correct to use when referring to them." This non-exhaustive guide aims to help faculty recognize and respect the pronouns used by their students.
- Society of Women Engineers
  - This resource includes a mentoring program that feature upper division students mentoring lower division students and also exposes students to female engineering professionals who can act as role models.

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Inclusive Practice Series

PART 3: Creating Inclusive Classroom Spaces for LGBTQIA+ Students

UC Davis has a history of active support for our LGBTQIA+ student population. In 2016, the advocacy group Campus Pride ranked UC Davis in the top 30 LGBT-friendly institutions of higher education in the US, giving our campus a rating of 4.5 out of 5 stars on their Campus Pride Index (a measure of an institution's commitment to LGBT-inclusive policies and practices). This type of institutional support is vital as research has shown that students in the LGBTQIA+ community are more at risk for experiencing psychological, social, and academic distress when compared to their herterosexual and gender-conforming peers (Kirsch, Conley, & Riley, 2015, p. 155; see also Ridner et al., 2016). This increased stress on students, particularly in their first year of college, can result in internalization of psychological distress, as well as increased engagement in risk behaviors and maladaptive coping strategies (Riley et al., 2016). Classroom instructors and GSIs play a critical role in supporting students, not only in terms of their academic success, but also in their social and emotional health. This resource will provide strategies and suggestions for supporting students from the LGBTQIA+ community, both in and out of the classroom.

Acknowledging, Respecting, and Making Visible LGBTQIA+ Identities
College is an important period of time for identity formation and it is critical that instructors create inclusive spaces where students' unique identities are both acknowledged and respected--this is especially true for students from the LGBTQIA+ community.

Strategies	Explanation	Examples/Suggestions
Provide opportunities for students to share their preferred names and pronouns	LGBTQIA+ students can experience significant stress related to first day of class activities like taking attendance and individual introductions (Schmalz, 2015). This stress can be caused by a constellation of factors, including whether course rosters include their preferred name or whether your classroom is a safe space to request the use of their preferred pronouns.	The UC Davis LGBTQIA+ Resource Center suggests asking all students in your classes to include both their preferred name and pronouns in their introductions to their peers at the beginning of the term. This can help gender-variant students feel more comfortable sharing their preferred pronouns, as they are not the only student doing so. Additionally, instructors themselves should include their preferred pronouns in their own introductions, as well as on their syllabi and email signatures (Zane, 2016). For example, you could introduce yourself using the following script: "Hello, my name is [title and name]. I use [she, her, and hers] pronouns."
Use gender-neutral terms when possible and remind students to respect each other's preferred pronouns throughout the term	It is also important to make sure that acknowledgement of students' preferred names and pronouns is not simply relegated to the first day. For example, students may forget their peers' preferred pronouns during class or group discussions in later classes, which can result in accidental misgendering. Additionally, you or your students may unintentionally use gendering language like "you guys" or "ladies and gentlemen," which can again exclude students for whom those terms do not apply.	Use gender-neutral terms whenever possible, and encourage students to do so as well. For example, instead of "you guys" you could say "y'all" or "everyone" (Zane, 2016). Additionally, if a student accidentally uses the incorrect pronouns for a peer, politely and unobtrusively correct them--this can help a gender-variant student feel acknowledged and included without singling them out.

Make LGBTQIA+ topics visible in your curriculum	Normative perspectives often tend to be overrepresented in courses across the curriculum. For example, instructors may unintentionally only include perspectives that validate normative sexual or gender identities (i.e., heterosexuality, cisgenders). Renn (2017), however, argues that "minoritized students report that they are motivated to learn when their identities are affirmed and included in the curriculum."	Consider including perspectives from scholars across the LGBTQIA+ spectrum in your readings and course materials, and/or design projects or course units that ask questions relevant to the experiences of students from these communities. For example, when possible, allow students to choose topics that are relevant to their identities--for example, students could explore issues important to their communities, including the LGBTQIA+ community related to the course subject matter.
		Additionally, try not to present heterosexual or gender-conforming identities as "normal," as this can further marginalize and exclude students across the LGBTQIA+ spectrum whose identities do not fit within the normative mold.

Syllabus Statement
In addition to the above strategies and suggestions, the UC Davis LGBTQIA+ Resource Center also recommends adding the following statement in your syllabus:

Pronouns are linguistic tools that we use to refer to people. (i.e. they/them/theirs, she/her/hers, he/him/his). Because pronouns in English are often associated with gender identity, using each other's correct pronouns is an important way to show respect to each other and create a learning environment that is inclusive to trans and gender-non-conforming scholars. Consistent with core values for this course, we will collectively create an inclusive learning environment by doing the following:*

1. *Offer opportunities for our classmates to share their correct pronouns*
2. *Use each other's pronouns correctly, or if pronouns are not known, refer to people by name or with gender neutral language*
3. *Discuss the group using gender neutral language (i.e. "y'all" or "everyone" versus "you guys")*

For more suggestions on how to be an ally to students from the LGBTQIA+ community, see the UC Davis LGBTQIA+ Resource Center's "Ally Tips" page.

Normalizing and Promoting Help-Seeking for Students
A recent study by Rutgers University (Intrabartola, 2017) analyzing survey responses from over 90,000 students across 902 institutions found that students who identified as LGBTQIA+ were far more likely to report having engaged in self-injury behavior, experienced severe depression, or seriously contemplated suicide when compared to their heterosexual and cisgender peers. This research corroborated findings from other studies indicating that students from the LGBTQIA+ community are more likely to experience feelings of psychological and social distress than their heterosexual and gender-conforming peers (Kirsch, Conley, & Riley, 2015; Ridner et al., 2016; Riley et al., 2016). It is also important to consider that students' identities are intersectional (i.e., students may experience multiple sociocultural identities at once). LGBTQIA+ students may also identify with other minoritized communities, such as: communities of color, first-generation college students, low-income students, and other sociocultural identities (Consortium of Higher Education, 2016; Renn, 2017). For example, LGBTQIA+ students of color may experience social, psychological, and academic challenges related to their both their racial identity(ies) and their sexuality/gender-identification.

Consider including information about on campus social-emotional support services and wellness resources in your syllabus and on Canvas, highlighting this information on the first day of class. Doing so both normalizes and promotes the importance of help seeking, not just for LGBTQIA+ students, but all students. Potential resources for students include:

- UC Davis LGBTQIA+ Resource Center
- UC Davis Counseling Services

- UC Davis Student Health and Wellness Center
- UC Davis Women's Resource and Research Center (WRRC)
- A more complete list of campus resources for you and your students can be found here.

Additional Resources

- UC Davis LGBTQIA+ Resource Center's Glossary
- UC Davis LGBTQIA+ Resource Center's Ally Tips
- UC Davis LGBTQIA+ Center's Guide to Pronouns
- Education Resources at *Gender Spectrum*
    - NOTE: these resources are written for a K-12 context, but the pedagogical strategies and considerations they advance are still valuable for higher education contexts as well.
- The Chronicle: "'Ask Me': What LGBTQ Students Want Their Professors to Know"

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Inclusive Practice Series

PART 4: Building Accessiblity into Your Courses

Postsecondary enrollment for students with disabilities has seen a steady increase over the last few decades (Hong, 2015). However, students with disabilities still face challenges and barriers toward completing their degrees. For example, the most recent report by the National Council on Disability found that the average time to graduation for students with physical disabilities was almost twice as long as their able-bodied peers (NCD, 2003; cited in Hong, 2015). Additionally, students with disabilities reported several barriers to success in college, including fear of faculty perceptions related to the need for accommodations and stressors such as the social stigma surrounding disability in addition to the physical, mental, and emotional demands of college classes (Hong, 2015). Faculty and graduate student instructors play a key role in supporting students with disabilities in postsecondary education. This resource will provide strategies and suggestions to help you build accessibility into your courses for all students.

Employing Principles of Universal Design

Employing principles of Universal Design for Learning (UDL) can be beneficial for all students in your classes, but is especially key for the success of student with disabilities. The framework involves supporting learning by providing multiples means of 1) engagement, 2) representation, and 3) action and expression (CAST, 2018). By clicking on the link above, you can find detailed instructional strategies and suggestions for integrating universal design into your courses, as well as research supporting these strategies. Additionally, here are a few examples to help you consider UDL as you build accessibility for *all* students into your courses:

Strategies	Explanations	Examples/Suggestions
Provide course materials or lecture content in multiple modalities	Learning is made more difficult for students with disabilities when course or lecture materials are inaccessible. For example, students who are visually impaired may have difficulty seeing lecture slides or writing on chalkboards. Similarly, students who are hard of hearing may have difficulty hearing their instructors during lecture or their peers during class discussions.	Consider providing your course materials or lecture content through multiple means and mediums, For example, you could video- or audio-record your lectures[1] and upload them to Canvas along with lecture slides. Additionally, the UC Davis Student Disability Center provides services for translating course materials and readings into audio formats (see Additional Technological Resources below).
Try to minimize distractions to learning in your classroom.	Threats or distractions to learning for students with disabilities can include excessive sensory stimuli in the classroom, or unexpected changes in course routines.	CAST (2018) suggests varying audio/visual sensory stimuli in your lectures, and providing opportunities for students to take short breaks and/or engage in active learning activities. Additionally, it is helpful for all students to maintain consistent course practices, minimize unexpected changes to the course calendar, and provide outlines for class activities--these strategies can help students establish routines that can help

[1] It is good practice to inform your students that you are recording the lecture. Additionally, if students may be visible in the recording, they must be informed that they might be recorded and given the option to sit outside the camera's view.

		them manage their work in your class and others.
Support the development of positive coping strategies	It can be difficult for some students to manage frustration and anxiety in academic settings. Many students need support in developing adaptive coping strategies for managing these emotions in productive ways.	CAST (2018) suggests providing students with scaffolding materials like frequent reminders, checklists (e.g., for assignments and other course tasks), and positive models for coping with stress. Employing mindfulness exercises during class time can also help students cope with anxiety--for example, at the beginning of class, you could have students pause for a minute, close their eyes, and visualize one goal they have for that class period.

Additional Suggestions for Making your Course More Accessible
In addition to incorporating principles of UDL, below are some additional strategies for building accessibility into your courses:

Strategies	Explanations	Examples/Suggestions
Allow students to use laptops, tablets, smartphones, and other technologies freely	Debates about whether device usage creates distractions for students and/or limits students' ability to process course material during lecture have been ongoing for the last few decades (Brooks & Pomerantz, 2017; McMurtrie, 2017). However, it is important to remember that for many students with disabilities, laptops, tablets, and smartphones are a vital and necessary part of how they engage and learn in the classroom.	Banning or limiting the use of laptops, tablets, or smartphones in your classroom may disproportionately impact students with disabilities who use these technologies for educational accessibility. Consider allowing students the choice to use their various devices in class, while emphasizing the importance of staying on task during class. As noted above, uploading recordings of your lectures along with lecture slides to Canvas and help students to actively engage with lecture content instead of just blindly copying notes.
Emphasize and encourage help-seeking in your class	A 2017 report from the National Council on Disability found that despite an increase in the number of students seeking mental health resources on college campuses, many students are still not receiving treatment for mental health conditions. For example, 61% of students who met criteria for a mental health disorder were not receiving treatment. Additionally, only 35% of students diagnosed with a mood disorder had received treatment in the past year, and less than half of students who had attempted or serious considered suicide had received professional support.	Emphasize help-seeking behaviors in your class by encouraging students to reach out to you or your TAs if they are struggling academically. Remind them to seek out counseling services if they need mental or emotional support and provide links to these services on your syllabus (see Additional Campus and Online Resource below for a list of helpful links). Additionally, encourage students to form study groups, as these can provide important opportunity for students to access peer social and emotional support.

Supporting Autism-Spectrum and/or Non-Neurotypical Students
Students with autism-spectrum disorder or other neurodevelopmental disorders face unique challenges in college. For example, students with autism report struggling with new and different situations and routines, difficulties establishing social relationships with their peers, time management and adequate

processing of new information, fears of disclosing their disabilities to faculty or advisors, and a host of mental health issues as a result of these and other challenges (Van Hees, Moyson, & Roeyers, 2015). Additional academic challenges can include a lack of organization and time management skills and difficulties communicating with faculty (Cai & Richdale, 2016), as well as struggles with the traditional lecture formats common in many college classes stemming from the multiple and conflicting sensory stimuli within these contexts (Myers, Ladner, & Koger, 2011).

As noted above, employing the principles of Universal Design for Learning (see above) can help students, including those with autism more easily engage in classroom activities and manage their workload (Grogan, 2015). For example:

- You can support students' development of time management skills by breaking course assignments and classroom tasks into more manageable pieces or distinctive steps (Kelley & Joseph, 2012).
- Establish routines for course or classroom activity, and do your best to not deviate from those practices. If a deviation is necessary, try to notify students as early as possible.
- It can also be helpful to provide models for setting reasonable personal goals and providing students with opportunities to check in with you about their progress in achieving those goals.
- Provide multiple means through which students can communicate with you (e.g., through Canvas, email, phone calls, or in-person) so that students for whom social interaction and communication is difficult can find a strategy that works for them.

Additional Technological Resources

There are also a number of technologies that instructors can employ in order to make their course materials, as well as classroom lectures and activities, more accessible to students with disabilities. Below are a few technological resources available at UC Davis:

- UC Davis Student Disability Center Document Converter
  - "The Student Disability Center converts documents online from text or image-based files into different formats, such as audio, Braille, and/or e-text."
- ClaroRead
  - ClaroRead is a multi-sensory software solution to provide support of reading and writing for struggling learners and ESL students, and includes features such as text to speech, word prediction, and spell check. ClaroRead is available to UC Davis students at no charge--please contact the SDC for more information.

Additional Campus and Online Resources

- UC Davis Student Disability Center
- UC Davis Counseling Services
- UC Davis Student Health and Wellness Center
- UC Davis Academic Technology Services
  - Aggie Video Services: Through their video services, ATS provides support for recording and storing lecture content online for students.
- UC Davis Campus Resources Guide
- Webinar Series from the Coalition for Disability Access in Health Science and Medical Education
  - This webinar series, though centered in the Health Science and Medical Education fields, provides important guidance for instructors across the curriculum in regards to the unique needs of students with disabilities.

Citation

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Microaggressions and Microaffirmations Series

PART 1: Defining Microaggressions and Microaffirmations

In 2015 the UC Office of the President held a workshop on fostering inclusive excellence for UC department chairs and deans. They published this list of example microaggressions, which subsequently received some backlash from across the political spectrum. This is an example of the highly political context in which microaggressions take shape and gain importance. Indeed, in a climate in which overt demonstrations of racist, homophobic, xenophobic, ableist and misogynist views are not uncommon on college campuses and elsewhere, awareness of more subtle forms of exclusion like microaggressions becomes increasingly important. What follows includes information to help instructors avoid microaggressions when possible, and identify and respond to them when they occur.

Defining Microaggressions
Although the term was first coined by Pierce in 1978, Sue et al. published a landmark 2007 study that defined microaggressions as "brief and commonplace daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative…slights and insults" (p. 271). Microaggressions are often unintentional or automatic, come from well-meaning people, and may leave everyone involved uncertain about what happened. However, it is more important to consider the way a person may experience a microaggression than it is to consider the intent behind the sentiment.

While the research on microaggressions is ongoing (Bartlett, 2017, Lilienfeld, 2017), students, faculty, and staff on college campuses do report experiencing these daily "indignities" (Sue et al., 2007). In an effort to help you avoid potentially invalidating your students' experiences, we provide this resource series.

Microaffirmations
As a positive strategy to prevent microaggressions, you can use "microaffirmations," or small acts that foster inclusion, listening, comfort, and support for people who may feel isolated or invisible in an environment (Rowe, 2008). These can include welcoming facial expressions, making concerted efforts to use students' correct names, pronunciations, and pronouns, affirming students' feelings and experiences, and rewarding positive behaviors. Consider using "affirming messages" such as these from Powell, Demetriou, and Fisher (2013):

- "I'm glad you're here,"
- "I see you're making progress in this area,"
- "I'm concerned about you. Please come visit me in office hours,"
- "What do you think you did well in this class/situation/assignment?"
- "What will you do differently next time?"
- "Have you thought about utilizing ___ (campus resource)? Many successful students find this resource helpful."
- "I notice that you're interested in ___. Have you considered participating in ___ (opportunity/program/organization)?"

Additional Resources
The following are a few additional resources that can help you understand and approach microaggressions:

- "How to Be an Ally to Someone Experiencing Microaggressions"
- "Microaffirmations in Higher Ed Advising"
- The Microaggressions Project
- Recognizing Microaggressions and the Messages They Send
    - From "Fostering Inclusive Excellence: Strategies and Tools for Department Chairs and Deans." 2015.

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Microaggressions and Microaffirmations Series

PART 2: Recognizing and Responding to Microaggressions

Over time, microaggressions can inhibit the academic performance of students as they experience increased feelings of discomfort, self-doubt, isolation, and emotional exhaustion (Solorzano et al., 2000); undue stress and feelings of exclusion (Yosso et al., 2009); hopelessness and even post-traumatic stress disorder (Nadal et al., 2011). Additionally, microaggressions can often be explained in ways that absolve the perpetrator of responsibility, implicitly delegitimizing the experience of the targeted person (Sue et al., 2007). This type of gaslighting, in which the person experiencing the microaggression is made to feel that they are imagining things or being "overly sensitive," can be just as detrimental as the microaggression itself (Sue, 2010).

Recognizing Microaggressions and the Messages They Send

Before you can respond to a microaggression, it's necessary to recognize that one has occured. As noted above, in 2015 the UC Office of the President published "Recognizing Microaggressions and the Messages They Send," a list of example microaggressions. The following examples are excerpted from that list:

Microaggressions	Examples	Messages
Ascription of intelligence. Evaluates someone's intelligence or aptitudes based on their race and gender.	(To a woman of color): "I would never have guessed you were a scientist!" Or "How did you get so good at math?"	People of color and/or women are not as intelligent and adept at math and science as whites and men.
Assumption of criminality/danger. Presumes a person of color to be dangerous, deviant or criminal because of their race.	A white person crosses the street to avoid a person of color, or a professor asks a young person of color in an academic building if they are lost, insinuating they may be trying to break in.	People of color don't belong here, they are dangerous.
"Othering" cultural values and communication styles. Indicates that dominant values and communication styles are "normal" or ideal.	Structuring grading practices in such a way that only verbal participation is rewarded, failing to recognize cultural differences in communication styles, and varying levels of comfort with English verbal communication.	Assimilate to the dominant culture.
Second class citizen. Awards differential treatment.	Calling on men students more frequently than women students; mistaking a student of color for a service worker.	Men's ideas are more important; people of color are destined to be servants.
Gender/sexuality exclusive language. Excludes women and LGBTQIA community.	Forms that only offer male/female choice for gender; use of the pronoun "he" to refer to all people.	There are only two acceptable genders; men are normative and women are derivative.

Responding to Microaggressions

Microaggressions can and do occur in the classroom. However, their occurrence can be an opportunity to stimulate potentially generative dialogues, though success in facilitating such conversations depends strongly on instructors' abilities to recognize and respond to microaggressions in the first place (Sue et al., 2009). Below are some practical strategies to dealing with microaggressions perpetrated by students:

Strategies	Teaching Suggestions
Address the comment.	Ignoring these comments can be tempting, especially if you feel uncomfortable, but that will send the message that such comments are okay.
Decide if immediately pursuing the topic is in the best interest of the class.	If necessary, count to ten and take a deep breath. If you feel unprepared to engage the topic, tell the class that you will talk about it at the next class meeting. Then prepare in the meantime, and revisit the topic at the next opportunity.
If you decide to pursue it, legitimize the discussion.	Avoid changing the subject or dismissing topics of race, gender, sexuality, citizenship status, disability, etc. as they arise (unless you are clear that you will return to the topic in the near future). This dismissal is itself a type of microaggression against some students.
Use a direct approach to facilitating the discussion.	Don't be a passive observer, or let the class take over the discussion. Similarly, try not to expect students to be "representatives" speaking for their identity groups, or to make up for your lack of comfort or knowledge. The A.C.T.I.O.N. Framework (Souza, Ganote, & Cheung, 2016) is one method for effectively responding to microaggressions in your classroom.
Validate the feelings of your students.	Avoid questioning, dismissing, or playing down feelings that your students have about issues of difference and power. They are trusting you when they share their feelings.
Be willing to accept a different reality than your own.	It's likely that if you have a different background and circumstances than your students, and the stories, feelings, and views they share may not resonate with your own.
Consider sharing the ways in which you have been conditioned by the circumstances of your life and society.	Revealing yourself as "flawed" will encourage students to take risks by sharing their experiences and thoughts, and communicates courage in approaching conversations about difference and relationality.

Additional Resources
The following are a few additional resources that can help you understand and approach microaggressions:

- "How to Be an Ally to Someone Experiencing Microaggressions"
- "Microaffirmations in Higher Ed Advising"
- The Microaggressions Project
- Recognizing Microaggressions and the Messages They Send
  - From "Fostering Inclusive Excellence: Strategies and Tools for Department Chairs and Deans." 2015.

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Student Wellbeing Series

PART 1: Asset-Based Approaches to Promoting Students' Wellbeing

Asset-based approaches to wellbeing for students are policies, practices, and strategies that identify and draw upon the strengths of individuals, families, and communities. Asset-based (aka strengths-based) practices involve shifting away from deficit approaches that tend to emphasize problems and/or focus on what students are unable to accomplish. Conversely, asset-based practices focus on the positive contributions that students make in the classroom, while also building partnerships between individuals and social support networks. These practices acknowledge individual, family, and community strengths and challenges, and engage stakeholders as partners in developing and supporting individuals (U.S. Department of Health and Human Services, n.d.).

Literature suggests at least three ways in which asset-based approaches benefit individuals (adapted from Green, McAllister, & Tarte, 2004):

- By encouraging students to engage in campus services and supports structures;
- By empowering students to be more effective participants in the classroom;
- By encouraging students to build positive social support networks through their relationships with their peers and instructors.

Instructors can play an important role in promoting strengths-based approaches to student wellness. This resource will outline strategies aligned with a preventative health framework and suggestions for how you as an educator can implement these strategies as part of your everyday engagement with students.

Dimensions of Wellbeing

Wellbeing is a multifaceted construct -- it is both an individual feeling, mental act, and/or a state of mind, as well as a relational activity between community members and set of long-term practices for both individuals and the community as a whole. Rath and Harder (2010) articulate five categories of wellbeing:

Career Wellbeing	How one occupies their time -- this can include liking what they do every day, or in the case of college students, feeling mentally and academically stimulated by course content and/or activities. Instructors can promote career wellbeing by designing assignments and activities that allow students to relate course content to their everyday lives, personal interests, and professional goals.
Community Wellbeing	The sense of engagement one has with where they live. As with social wellbeing (see below), instructors can promote community wellbeing by encouraging students to create meaningful relationships both on campus (e.g., with peers, instructors, advisors, staff, etc.) and off (e.g., friends, mentors, affinity groups, etc.). Instructors can also support students by connecting course materials to relevant community events. The UC Davis Academic and Event calendar has a host of community-based activities.
Financial Wellbeing	Effectively managing one's economic life. Many college students face financial instability on a daily basis (Bronton & Goldrick-Rab, 2016). For example, some students may be working one or more jobs to support themselves and many more are using student loans to finance their education. Instructors can support students experiencing financial instability by remaining flexible when emergencies arise or when students' external lives impact their abilities to perform in the classroom. Instructors can also

	include this resource from Student Health and Counseling Services on their syllabus and Canvas site (as a link).
Physical and Psychological Wellbeing	Having good physical and psychological health and enough energy to get things done on a daily basis. Parts 2, 3, and 4 of this resource will focus on these dimensions of wellbeing in more detail and provide strategies for how instructors can promote students' physical and psychological wellbeing.
Social Wellbeing	Having strong relationships and love in your life. Instructors can promote social wellbeing by enabling students to construct meaningful social relationships with their peers in class (e.g., through peer learning activities and group work) and encouraging students to construct meaningful social relationships with the broader campus community (e.g., through student life activities and/or social groups).

Primary, Secondary and Tertiary Prevention
The following strategies were adapted from the Institute for Work and Health and are helpful initial steps towards establishing a supportive learning environment for students. More in-depth/targeted strategies are provided in Parts 2, 3, and 4 of the Wellbeing series.

	Explanations	Suggestions
Primary Prevention	Primary prevention aims to prevent health crises before they occur. This can be done by preventing exposure, altering unhealthy or unsafe behaviors, and educating students about healthy and safe habits.	Many students, particularly first-year students, first-generation students, transfer students, and international students, etc., may not be aware of campus resources and programs like Student Health and Counseling Services, which is designed to support students experiencing a variety of health crises. Provide links to these services on your syllabus and on Canvas, and make sure to highlight these services on the first day of class and during high-stress times of the quarter (e.g., midterms, finals, etc.). For a full list of campus resources, see our Campus Resources Guide.
Secondary Prevention	Secondary prevention aims to reduce the impact of a health crisis that has already occurred. This can be done by identifying and intervening when students appear to be struggling, while also creating an environment where students feel comfortable acknowledging that they need support. The impact of students' health crises can also be partially mitigated when instructors are reasonably flexible with students who are experiencing health issues and work with those students to create workable plans for getting back on track.	Some students may feel conflicted about approaching instructors when they are experiencing a health crisis. Consider periodically reminding students that they are welcome to contact you or your TAs for support, or to come by office hours if they need help. Also remind students that there are a number of campus programs they can reach out to as well (see above). If a student does approach you to discuss a health crisis, consider working with them to develop accommodations and/or make-up plans that are reasonable to both you and the student. It is also important to refer students to other resources when their needs exceed your expertise or are outside of your comfort level.
Tertiary Prevention	Tertiary prevention aims to soften the impact of an ongoing health crisis or condition that has lasting effects. This can	Encourage students to contact you about any chronic health conditions they may be experiencing, or any accommodations they

	be done by partnering with students, advisors, and other campus support programs in order to provide students with the support they need to succeed. This may include making accommodations for students in partnership with campus units (e.g., the Student Disability Center) and altering assignment or test conditions or deadlines when necessary.	may need. Refer students to the Student Disability Center, where they can receive appropriate support and/or accommodations. Additionally, consider researching ways to make your classroom more accessible to students with disabilities -- for more on this, see our resource on Inclusive Practices.

Additional Resources

- You may consider including some or all of these links on your syllabus and/or on Canvas:
  UC Davis Student Health and Counseling Services
  - Medical Services
  - Counseling Services
  - Wellness Services

  UC Davis Aggie Compass
  UC Davis Student Disability Center

Citation

Center for Educational Effectiveness [CEE]. (2019). Implicit Bias Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Student Wellbeing Series

PART 2: Supporting Students Experiencing Housing and/or Food Insecurity

Students in higher education are increasingly facing challenges related to food and/or housing insecurity. For example, a study by Nazmi et al. (2018) found that as many as one in two US college students, or 43.5% nationally, may be impacted by food insecurity – the lack of reliable access to a sufficient quantity of affordable and nutritious food. This far outweighs the national household average of 12.7% as of 2015. Similarly, Bronton and Goldrick-Rab (2016) found that 27% of the 3000 students they surveyed reported that within the past month "they did not have enough money to buy food, ate less than they felt they should, or cut the size of their meals." Seven percent reported that they had recently gone the entire day without eating (p. 18).

Housing security is also an issue of concern in higher education. A study by the Wisconsin HOPE Lab (2016) found that within the previous year, nearly 25% of two-year college students reported being unable to pay utilities, while an additional 24% reported being unable to pay rent (cited in Bronton and Goldrick-Rab, 2016). Both housing and food insecurity can negatively affect students' academic performance. Maroto, Snelling, and Linck (2015) found that food insecure students were 22% more likely to record a lower GPA (2.0-2.49) versus a higher GPA (3.5-4.0).

This resource will outline the landscape of food and housing insecurity across the UC System, as well as the efforts being made to address these issues. This resource will also provide some strategies and suggestions for how to support food or housing insecure students in your classrooms. At the end of this resource is a sample statement you may wish to consider including/modifying for your syllabus on food and housing insecurity.

Food and Housing Insecurity Across the UC System

In 2015, the *Student Food Access and Security Study* was conducted in order to understand how food insecurity affected students in the UC system. The main findings of this study indicated that 48% of undergraduate and 25% of graduate students in the UC system reported experiencing food insecurity. The study also indicated that "food insecure students were more likely than food secure students to receive federal nutrition assistance and need-based financial assistance, like Pell Grants and to have experienced food insecurity as a child" (p. 4). On the other hand, 57% of food insecure students reported that they were not previously food insecure. In terms of housing, in two internal student experience surveys conducted by the UC Office of the President, 5% of both UC undergraduate and graduate students reported experiencing homelessness during their enrollment. Note: while the definition of homelessness is still being determined nationally, the UC question provided responses ranging from "couch surfing" at a friend's place, living in one's car, and/or living on the streets.

Strategies for Supporting Students Experiencing Food and/or Housing Insecurity

Strategies	Explanations	Examples
Familiarize yourself with students in you class	Getting to know your students helps establish a positive student-instructor relationship that is beneficial for learning. It also helps you identify differences in their behavior, demeanor, and overall presentation, etc. Subtle and/or drastic changes can be an indication that the student may be experiencing a challenge of some sort.	Early in the term (e.g., the first day), have students answer a few questions about themselves on a 3x5 notecard, such as where they are from and what they enjoy doing in their free time. You can then collect and use these notecards to help you learn student names and gain a little insight into who they are. For smaller classes, you may allow time in class for students to introduce themselves to the class using the cards. In larger courses you may choose to have students share

		in pairs for the sake of time. Regardless of class size, consider inviting students to stop by your office (or some other neutral locations like the library or Memorial Union) to introduce themselves in the first few weeks of the quarter.
Make a habit of asking students how they are doing before or after class and during office hours	Asking students how they are doing regularly, both communicates that you care and opens the lines of communication, which is integral to establishing trusting student-instructor relationships. Trusting relationships help foster a learning environment in which students feel comfortable approaching instructors when they are experiencing a challenge.	It is especially important to ask about students' wellbeing during stressful parts of the quarter, such as midterms, before exams, and during the last few weeks of the term when students are preparing for finals. Linking (or relinking) to the Student Health and Counseling Services, or other campus resources, on the Canvas site can promote awareness of resources to assist students.
Encourage students to reach out to you if they are experiencing food and/or housing insecurity	As stated in the introduction, food and/or housing insecurity can negatively affect students' academic performances (Maroto, Snelling, & Linck, 2015). Food and/or housing insecure students may have trouble attending class, meeting deadlines or completing work, accessing course materials or software, performing on assessments, and/or otherwise struggling in your class. Fear of stigmas associated with poverty may also prevent students from seeking help from you or other campus points of contact and support structures.	Encourage students to talk to you in office hours or through email if they are struggling with food and/or housing insecurity, as a way of normalizing help-seeking behavior and lessening students fear of stigmatization. Provide links to the Aggie Food Connection and the Aggie Compass: Basic Needs Center (see below) on your syllabus and Canvas site. You can also consider building flexibility into your attendance and late-work policies, within reason, and working with students to establish plans for getting back on track if they fall behind.
Ensure that students are aware of campus resources related to food and housing insecurity	Many students, especially first-year and first-generation college students, may not be aware of campus resources meant to aid them in accessing affordable food and/or housing, or campus resources in general. Even when students are aware of campus resources, concerns about stigmas attached to accessing such resources may discourage students from seeking help when needed.	At UC Davis, Aggie Compass was launched in 2018 to help address food insecurity among students. Consider highlighting Aggie Compass and other campus resources in your syllabus and on Canvas. You can also periodically remind students that there are resources available to support them if they are experiencing food and/or housing insecurity. Again, encouraging students to utilize resources they need helps normalize and promote help-seeking behaviors in students. Below is additional information about Aggie Compass, as well as a sample syllabus statement. Additional food and nutrition related resources on campus, and in the city of Davis, can be found through Student Health and Counseling Services.
When possible, choose open access or low-cost options for textbooks and	The cost of attending college has increased rapidly over the last few decades -- not only has the cost of tuition increased dramatically (accounting for over 60% of the cost of enrollment) but	Consider all costs associated you're your course. For example, instead of asking students to purchase a course reader, consider providing PDFs of articles or single chapter readings on Canvas

other course materials	cost of living expenses for college students have also increased by over 80% in the last four decades (UCOP, 2017). These additional costs are compounded by increased costs for supplementary materials like textbooks, course software and equipment, and campus fees.	(NOTE: make sure you are following Fair Use guidelines when choosing this option). Additionally, allowing and/or encouraging students to use open source alternatives like *R Studio*, or making sure that course software is accessible in campus computer labs or the IET Virtual Lab, can help mitigate the cost of expensive course software. Additionally, Subject Librarians at Shields Library may be able to help you identify materials available through the UCD catalog and databases.

Aggie Compass: Basic Needs Center
With approximately 41% of enrolled undergraduates being Pell grant eligible (that is, students who are eligible to receive a federally-funded grant award based solely on their financial need), the division of Student Affairs has opened Aggie Compass, a one-stop shop, located on the first floor of Memorial Union in the East Wing, to assist students with resources to address basic needs, including food and housing insecurity. The Center is open Monday-Friday from 9:00 AM to 5:00 PM, and closed Saturday and Sunday. For more information, contact the Aggie Compass at (530) 752-9254 or compass@ucdavis.edu.

Additional UC Davis Information and Initiatives
The financial aid office and Educational Opportunity Program (EOP) have both integrated language in their publications to communicate CalFresh eligibility to students. Students who are work-study eligible and/or EOP awarded can automatically be CalFresh recipients if they complete the application. There is also an online application form that directs students to apply. Please note the URL is specific to UC Davis for tracking purposes. Students can schedule an appointment for help enrolling in CalFresh using this link: https://aggiecompass.ucdavis.edu/get-calfresh.

Sample Syllabus Statement
Eating enough nutritious food energizes your brain and body. Without it, your academics, physical health, and mental well-being may suffer. If you are skipping or stretching meals, worrying about money or food, and/or having difficulties accessing nutritious and sufficient food, visit Aggie Compass Basic Needs Center (aggiecompass.ucdavis.edu) located on the first floor of the MU. Aggie Compass welcomes and supports everyone in meeting their basic needs.

- *Optional Text (1): You may also consider reaching out to the professor if you are comfortable in doing so.*
- *Optional Text (2): Note that many students face these challenges during their college years and seeking support is healthy.*

Citation
Center for Educational Effectiveness [CEE]. (2019). Implicit Bias Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Student Wellbeing Series

PART 3: Supporting Students Experiencing Mental Health Crises

Research suggests that students enrolled in institutions of higher education are increasingly experiencing issues related to mental health and other forms of psychological distress, yet many do not seek assistance (Chen, Romero, & Karver, 2016; Hunt & Eisenberg, 2010). *Healthy UC Davis* provides a list of several common mental health conditions prevalent on college campuses, including addiction, anxiety disorders, depression and other mood disorders, eating disorders, and post-traumatic stress disorder (PTSD), among others. Stress caused by the demands of academic work loads, often combined with outside employment and social and/or familial obligations, can exacerbate already existing mental health issues. Additionally, students from marginalized communities, in particular students from the LGBTQIA+ community, are at greater risk for experiencing mental health crises while enrolled in college (Kirsch, Conley, & Riley, 2015; Ridner et al., 2016).

Instructors (faculty, graduate student instructors, teaching assistants) play an important role in supporting students experiencing mental health crises and promoting help-seeking behaviors that can ensure students' overall wellbeing. This resource will provide strategies and suggestions for how instructors can support students' psychological wellbeing and outline resources available for students at UC Davis.

Mental Health Trends

In their 2016 guide for promoting students' mental health, the UC Office of the President reported that in the previous 8 years there had been a 54% increase in the utilization of counseling resources across the UC system. This number may have been under-reported, as many students may not have been accessing resources or seeking structured help. The report also noted that 1 in 4 UC students seeking counseling services received psychotropic medication and that medications for mental health represented the largest share of prescriptions through the UC Student Health Insurance Plans (UCOP, 2016).

These results mirror national trends showing an increase in the utilization of mental health services on college campuses. For example, according to a 2015 Center for Collegiate Mental Health (CCMH) report, data from 93 institutions showed an average increase of 29.6% in students seeking counseling services and an average increase of 38.4% in counseling center appointments (cited in UCOP, 2016).

Strategies for Supporting Students Experiencing Mental Health Crises

Strategies	Explanations	Examples
Look for indicators that a student is experiencing distress	UCOP (2016) notes that instructors are often the first to notice a student experiencing distress: "in these situations, you do not have to take on the role of a counselor or attempt to diagnose a student. You need only to notice the signs of distress and communicate these to the appropriate resource." While the presence of one or more indicators of mental or emotional distress does not necessarily mean that a student is in need of additional support, the more indicators that can be observed, the more likely it is that a student is experiencing a crisis.	Academic indicators can include (but are not limited to): • Repeated absences, missed assignment or exams. • Expressions of overly morbid or violent thoughts in assignments or activities. • Overblown or disproportionate responses to grades or other assessments. Other indicators can include: • Behavioral or emotional outbursts or acting withdrawn. • Physical indicators like deterioration in appearance or personal hygiene. • Frequent or chronic illness.

		For a more complete list of potential indicators of mental or emotional distress, see UCOPs (2016) guide for faculty and staff.
Respond compassionately to students experiencing mental health crises	It is important that you respond with compassion when students are experiencing distress, and when possible, assist them in accessing the resources or services they may need. A compassionate response may include having "a direct conversation with the student to express your concern and offer resource referral information" (UCOP, 2016), as well as working with the student to ensure that he/she/they do not fall too far behind.	Hunt and Eisenberg (2010) note that one of the main barriers to students' seeking mental health services is a lack of awareness of resources available to them on their campus. In addition to providing students with information about health and wellbeing resources at UC Davis (see *Additional Resource* below), remind students that these resources exist throughout the quarter and provide links on Canvas. Furthermore, you can also consider building flexibility into your attendance and late-work policies, within reason, and working with students to establish plans for getting back on track if they fall behind.
Combat stigma by normalizing help-seeking behaviors	Eisenberg et al. (2009) found that while students were concerned with the perceived public stigma toward mental health issues, personal stigmatization was more closely related to lower help-seeking. In other words, students' own negative perceptions of mental health and/or related treatments in turn negatively influenced their likelihood to seek help when distressed.	Challenge students' personal stigmatizing attitudes by presenting accessing mental health services on campus as both normal and healthy. Make students aware of resources on campus, such as the UC Davis Counseling Services and the open-access resources related to health and wellbeing from *Healthy UC Davis*. You can do this by linking to these resources on your syllabus and on Canvas, and encouraging students to visit them during especially stressful times in the quarter. To the extent that you are comfortable, you may consider sharing your experiences with utilizing mental health resources, as a way to normalize seeking help.

Additional Resources

UC Davis Red Folder Initiative
UC Davis Student Health and Counseling Services
- Medical Services
- Counseling Services
- Wellness Services

Healthy UC Davis: Open Access Resources
UCOP Student Mental Health Resources & Promising Practices

Citation

Center for Educational Effectiveness [CEE]. (2019). Implicit Bias Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Student Wellbeing Series

PART 4: Strategies for Preventing Mental Health Crises and Building Healthy Habits

For many students, college represents an important period of growth and key moments in which lifelong habits regarding health and wellbeing are formed. Developing healthy habits in college is not only beneficial for students' future selves but can help reduce students' stress and anxiety during school (Bamber & Schneider, 2016; Greeson et al., 2014) and may therefore help prevent stress-related mental health crises. There are several simple, everyday activities and strategies that instructors can employ to help students learn and develop healthy habits and to encourage their wellbeing.

Physical Activity and Mental Health
Literature suggests that regular physical activity can help with depression and anxiety (Carek, Laibstain, & Carek, 2011; Crews, 2004), both common challenges faced by college students (Bayram & Bilgel, 2008; Blanco & Okuda, 2008), and known to have detrimental effects on performance (Bruffaerts et al., 2018).

Though studies in higher education are emerging, there is considerable literature at the primary and secondary level to suggest that moderate amounts of physical activity can promote academic and cognitive performance (Donnelly & Lambourne, 2011; Maher et al., 2016; Von Thiele Schwarz & Hasson, 2011; Watson et al., 2017; Wittberg & Cottrel, 2009). Instructors can encourage students to explore possible avenues for physical activity by reminding them that their student fees grant them access to the UC Davis ARC. Consider providing a link to the ARC's website on your syllabus and encouraging them to visit the Center during stressful times in the quarter (i.e., midterms, before exams, and during finals). Additionally, if you regularly exercise or routinely incorporate physical activity into your life, consider mentioning this to students as a model for healthy behavior.

Mindfulness and Meditation
Other useful strategies for stress-management are mindfulness exercises and meditation. Mindfulness is generally defined as "the skill of learning to pay attention, without judgment, to one's present-moment experience" (Greeson et al., 2014). Research has shown that students who participate in mindfulness exercises are less stressed, have fewer problems sleeping, and have more self-compassion (Greeson et al., 2014). Additionally, in their extensive review of the literature, Bamber and Schneider (2016) found that overall research suggests that mindfulness meditation exercises show promise in reducing students' stress and anxiety in college. Meditation and other mindfulness exercises can not only easily be integrated into students' everyday routines, but can also be incorporated into the classroom through quick, guided activities.

Healthy UC Davis provides a few examples of meditation and mindfulness exercises. Before tests or exams, have students close their eyes and take deep, measured breaths, thinking only of the present moment. You can guide students through the meditation by having them inhale for 4 seconds, hold for 4 seconds, and then exhale for 4 seconds. You can also have students visualize being successful on exams or important class assignments and/or begin class by having students free write about something they're either grateful for or feel positively about. As mindfulness exercises promote paying attention to the present moment, it can also be useful to encourage students to complete one task at a time, rather than attempting to multitask.

Additional Resources
- Healthy UC Davis has created a number of open-access resources about health and wellbeing for students to access online. Resources include podcasts and video guides, articles and fact sheets, helpful mobile applications, and more. Topics of these resources include (but are not limited to):

  General Stress Management
  Mindfulness
  Meditation

Resilience

- The whole catalog of open-access resources can be found here: Healthy UC Davis: Open Access Resources. Consider linking to this website on your syllabus, Canvas site, and taking time throughout the quarter to encourage your students to check out these resources.

Citation

Center for Educational Effectiveness [CEE]. (2019). Implicit Bias Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Supporting First-Generation University Students Series

PART 1: Promoting Academic Success

A first-generation student is identified as a US student whose parents/guardians have not received a four-year, US bachelor's degree (Engle & Tinto, 2008). 42% of UC Davis students self-identify as first-generation students (UC Davis Undergraduate Admissions and UC Info Center, Fall 2015). Numerous studies have indicated that first-generation students tend to experience a variety of educational, financial, and social barriers that make successful completion of a bachelor's degree more difficult than for their continuing-generation peers (Collier & Morgan, 2008; Covarrubias & Fryberg 2015; Engle & Tinto, 2008; Ishitani, 2006; Lohfink & Paulsen, 2005; Stephens et al., 2012). However, when faculty partner with administrators and educational support staff, there is much than can be done to ensure the success of first-generation students.

See first-generation students as pioneers in higher education

One important way to better support first-generation students is to modify the way we think about them, including our perceptions of the ways their prior experiences and backgrounds influence their engagement (Greenwald, 2012). Greenwald (2012) argues that by thinking of first-generation students as "pioneers" in their families and their communities, we can better recognize the unique skills and experiences they bring to our classrooms. An example of how you might do this in your own classroom is to consider what it means to be a first-generation student for different students in your class. The first-generation experience is often perceived to be similar for all such classified students. However, it's important to recognize that first-generation students are also a diverse group in itself (Engle & Tinto, 2008): some are low-income, some are minority/non-White, some are disabled, some are English Learners, some may be undocumented. Keep in mind that not all students share all of the same ethnic, socioeconomic, linguistic, and cultural characteristics.

Recognize some of your students' current life situations

Engle & Tinto (2008) emphasize the fact that first-generation students face a variety of extracurricular challenges to completing a bachelor's degree.

Challenges	Explanations	Teaching Suggestions
Extensive and diverse demands on their time outside of school	First-generation students often commute, work many hours, and have unusual schedules. They may have part-time enrollment status, interruptions in their enrollment, and occasional impediments to their persistence.	Help students with time management by designing assignments and timelines that allow for research or collaboration to be done outside of class or off-campus. Do not require the use of resources that are limited or only available at certain times.
May face serious financial hardships	Be aware that first-generation students may face financial issues that are similar and different from other students.	Unless students need to buy particular supplies or apps for your class, be cognizant of additional financial burdens. For example, consider using open source software (e.g., R), open source textbooks, and other free course materials if possible.
The sense that they don't fit in at home or at school	First-generation students are developing a new set of language skills, academic skills, and beliefs as they learn to be college students. These may be different from those present in their families and communities.	Be aware that some students may hold contradictory feelings as they may sometimes believe that they do not fully fit in either academia or back in their communities.

They may be bi/multilingual and/or multi-dialectal	Some first-generation students may be bi/multilingual in English and another language(s), or may speak in different dialects in their communities and at home.	Support learning of academic language in your class by clarifying terminology, using synonyms, and explaining the different linguistic demands of academic genres in your discipline.

The role of faculty interaction in helping first-generation students succeed
First-generation, college students typically apply to universities and undertake university study without guidance and acculturation from parents and family members who already attended and/or graduated from college. Therefore, their interactions with faculty represent an important source of information on the occluded aspects of college life, as well as guidance on academic preparations, and how to gain social and cultural capital to become successful college students. In fact, interactions with faculty have been shown to have a positive impact on retention of first-generation students in college (Wang, 2012, 2014).

Challenges	Explanations	Teaching Suggestions
May lack a clear sense of how college differs from high school	Some first-generation students may not clearly understand how college differs from high school, or may lack a clear sense of what they need to do in order to succeed in a college class. Additionally, the initial learning curve for first-generation students may be steeper than it is for students who come from college-educated families.	Transparent explanations of course outcomes and expectations is critical in helping first-generation students be successful (Winkelmes et al., 2016). Make sure to clearly outline your expectations in your syllabus, assignment sheets, and other course material, and allow plenty of time for questions. Additionally, Wang (2014) suggests that teachers should offer specific advice on how to succeed in their class, and help first-generation students connect with resources around campus (e.g., TRiO, SASC).
May lack familiarity with university culture	Many first-generation students may lack familiarity with the culture and expectations of the university. As such, some first-generation students may experience "imposter syndrome," or feel confusion, intimidation, stress, self-doubt, and low confidence as a result of their lack of familiarity.	Try to emphasize campus resources such as Counseling Services that can help students manage the stress of being in the new environment of the university. If you feel that a student may need more support, reach out to them or contact their advisor if possible.
May lack knowledge or confidence in approaching faculty	First-generation students may not be familiar with the concept of establishing personal relationships with their professor or teaching assistants.	Make sure that students know you and/or your TAs are available to talk if needed (in class, after class, and/or during office hours), and try to be as welcoming as possible towards students so that they feel more comfortable reaching out. It can also help to share that the purpose of office hours is to build supportive relationships between instructors/TAs and students, so that students feel less timid about stopping by.

Adapted from: Lohman, 2015

Additional Resources

- *Q&A: Stanford's Hazel Markus*
- Grand Valley State University Resource on First Generation Students
- *First generation: Best practices for faculty. [UC Irvine]*
- *First year experience. [UCLA]*

- "I fit in neither place." Article from Zamudio-Suarez in *The Chronicle of Higher Education.*

Citation

Center for Educational Effectiveness [CEE]. (2018). Supporting First-Generation University Students Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Supporting First-Generation University Students Series

PART 2: Strategies for Transparent Teaching

Engle & Tinto (2008) argue that "due to the changing demographics of the United States, we must focus our efforts on improving postsecondary access and success among those populations who have previously been underrepresented in higher education, namely low-income and minority students, many of whom will be the first in their families to go to college" (p. 2). Improving the educational outcomes of first-generation students is an important responsibility shared by faculty, staff, and administrators, and doing so means implementing pedagogical strategies that will ultimately benefit all types of students (i.e., diverse students, domestic students, international students, transfer students, and English Learners).

Clarify your expectations

In their study, Collier & Morgan (2008) found that there are often vast differences in perspectives between faculty and students on expectations for the classroom. The researchers emphasize the importance of helping first-generation student learn to master the role of being a college student. For example:

Strategies	Teaching Suggestions
Communicate high expectations	Communicate high expectations for all of your students, in a supportive way. For first-generation students, communicate that they belong in university and that they are capable of achieving at the highest levels.
Explain your teaching approach	Briefly explain your teaching approach (Winkelmes et al., 2016). This helps students understand what they are expected to do to succeed and how your teaching approach will help them learn.
Clarify activities	Clarify the different activities that make up your class, as well as expectations for these activities (e.g., lecture, sections, labs, office hours).
Model expectations	Model what you expect students to do so that students can perform in ways that meet your high expectations.

Make your assignments and exams more transparent and culturally inclusive

Winkelmes et al. (2016) found that providing greater transparency on assignments significantly improved academic outcomes for first-generation, low-income, and underrepresented students. Some strategies for increasing transparency include:

Strategies	Teaching Suggestions
Be explicit with your expectations	Be explicit about what you expect student to do for different assignments and how to prepare for exams. Provide outlines, study guides, and examples of strong/weak work. Check if your exam questions define the learning outcome or performance to be assessed, specify the scope of content to be covered, and use non-ambiguous, simple language. Develop and use rubrics for all your graded assignments, and share these rubrics with your students early (Stevens & Levi., 2005).
Check for bias in assignment and exam designs	Check your assignments and exams for clarity, as well as bias related to ethnicity, gender, culture, religion, class, language, or processes. Consider if an exam assumes prior cultural knowledge and/or US-specific cultural knowledge (that was not covered in class or in the content). Have a colleague or teaching assistant read and/complete the exam and provide you with feedback.

Develop students critical analysis skills	Help students understand what it means to evaluate and critique ideas. Some first-generation students may come from socioeconomic and cultural backgrounds that see criticism as a personal attack to authority. Some first-generation students may not be familiar with the academic process of evaluating and critiquing ideas that is part of the US college culture.

Apply principles of effective adult learning to your teaching
The principles of effective adult learning emphasize the value of students' prior life and non-traditional learning experiences. Stephens et al. (2015) found that participants from underrepresented backgrounds in their study that were encouraged to reflect on their experiences learned to perceive the challenges and obstacles they faced in college as sources of strength. Here are a few strategies you can implement in your own classroom:

Strategies	Teaching Suggestions
Emphasize learning outcomes	Winkelmes et al., 2016 suggests emphasizing the learning outcomes of your course, and explaining how specific tasks/projects are designed to help students achieve those outcomes. Be transparent in communicating the learning outcomes in your syllabus, teaching materials (e.g., lecture slides, lesson plans, etc.), and assignments.
	Have a discussion with your students about what they will know, what they will be able to do, and the types of attitudes and social/career skills that they will develop by the end of your course. Give your students time to ask questions and/or clarify your expectations. Have students write personal and career goals that they want to achieve during the term, and then have them connect those goals to the learning outcomes of your course.
Implement authentic activities and assignments	Consider designing your course around authentic assignments and practical tasks. The goal of these assignments are to help students not only understand what they are learning, but why they are learning it, and how it will apply to their work in the future. For example, inquiry- or problem-based projects provide students with opportunities to engage in the types of writing and problem-solving common in their disciplines or careers, and could allow students to interact with established members of their discipline or professionals in their career area.
	Also consider using practical projects that give students something they can take with them from your course (e.g., research they might continue in the future, documents they can use later, etc.). Focus on transferable skills that advance critical thinking and problem-solving for life outside the university.
Scaffold learning experiences	Provide structured and/or scaffolded learning experiences to help students move to more independent problem solving and learning. For example, you could provide more structure in the beginning of the course when students are less confident, and then let them take more responsibility for their learning as the term progresses.
Help students make connections between your class and their major/minor	Help students understand how your class fits into a major/minor and into students' academic and professional preparation. Collier & Morgan (2008) emphasize that first-generation students may be missing knowledge of university culture that their continuing-generation peers may already have, such as an understanding of the connections between course, majors/minors, disciplines, and career paths.
Encourage students to make use of their prior knowledge and experiences	Tap into students' prior experiences and prior knowledge and help them explore how they can apply it to the new content. First-generation students often have valuable knowledge and experience that they can apply to the classroom if invited to do so.

Adapted from: Lohman, 2015

Additional Resources

- *Q&A: Stanford's Hazel Markus*
- Grand Valley State University Resource on First Generation Students
- *First generation: Best practices for faculty. [UC Irvine]*
- *First year experience. [UCLA]*
- "I fit in neither place." Article from Zamudio-Suarez in *The Chronicle of Higher Education.*

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Supporting First-Generation University Students Series

PART 3: Strategies for Encouraging Academic Engagement

Pascarella et al. (2004) emphasize the importance of academic and classroom engagement for first-generation students. They contend that first-generation students may benefit from their academic experiences comparatively more to their continuing-generation peers because these experiences build cultural capital they might otherwise not have access to (Pascarella et al., 2004). Additionally, access to consistent, timely feedback can help first-generation students as they acclimate to the differing demands associated with academic work in college. Here are a few ways you can promote engagement in your classroom, while also encouraging students to access and utilize feedback:

Strategies	Teaching Suggestions
Encourage students to set goals	Encourage students to set their own learning goals and develop a personal plan for achieving them. Have them reflect on those goals throughout the term, so that they can see their own progress.
Implement reflection activities	Incorporate student reflection, self-assessment, and peer-review activities. These type of activities allow students to engage actively not only with their own learning process, but their peers' as well.
Incorporate more active and collaborative learning	Implement active learning activities, and provide students with numerous opportunities for collaboration. See our resources on active and collaborative learning (linked below in Additional Resources).
Help students relate course objectives to their lives	Motivate students by helping them see how course materials and course experiences may relate to their lives and goals, as well as those of their families and communities
Create opportunities for outside engagement	Direct students to activities that blend personal and community engagement, such as service learning, undergraduate research, and internships

Encourage students to seek help and feedback

Current research on supporting the retention of first-generation students emphasizes the importance of providing students with resources for accessing academic support, both inside and outside of your classroom (Brazil-Cruz & Martinez, 2016; Coffman, 2011; Lohfink & Paulsen, 2005; Swecker, Fifoit, & Searby, 2013; Wibrowski, Matthews, & Kitsantas, 2016). Some strategies for this include:

Strategies	Teaching Suggestions
Make feedback an important part of class	Make help- and feedback-seeking an integral part of your class activities. Help students see that it is normal to be vulnerable, seek support, and receive feedback. See our series on "Effective Feedback" for more suggestions on this.
Point students to other resources on campus	Be aware that many students may lack knowledge about, and access to, academic resources such as the Library. Plan for an activity that introduces students to the Library, its services, and the type of help that they can receive from a librarian.
	Help students navigate the higher education system and identify resources where they can receive the help. Include information on various university support services in your syllabus (e.g., SASC Writing Assistance, Student

	Disability Center, Leadership Programs, Veterans Resource Center, and Counseling Services).

Adapted from: Lohman, 2015

Additional Resources

- *Q&A: Stanford's Hazel Markus*
- Grand Valley State University Resource on First Generation Students
- *First generation: Best practices for faculty. [UC Irvine]*
- *First year experience. [UCLA]*
- "I fit in neither place." Article from Zamudio-Suarez in *The Chronicle of Higher Education.*

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Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education, 75*(3), 249-284.

Stephens, N. M., Townsend, S. S., Hamedani, M. G., Destin, M., & Manzo, V. (2015). A difference-education intervention equips first-generation college students to thrive in the face of stressful college situations. *Psychological science, 26*(10), 1556-1566.

Stevens, D. D., & Levi, A. (2005). Leveling the field: Using Rubrics to achieve greater equity in teaching and grading. *Essays on Teaching Excellence: Toward the Best in the Academy, 17*(1). Retrieved from http://podnetwork.org/content/uploads/V17-N1-Stevens_Levi.pdf

Swecker, H. K., Fifolt, M., & Searby, L. (2013). Academic advising and first-generation college students: A quantitative study on student retention. *NACADA Journal, 33*(1), 46-53.

Wibrowski, C. R., Matthews, W. K., & Kitsantas, A. (2016). The role of a skills learning support program on first-generation college students' self-regulation, motivation, and academic achievement: A longitudinal study. *Journal of College Student Retention: Research, Theory & Practice, 0*(0), 1-16.

Winkelmes, M. A., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Weavil, K. H. (2016). A teaching intervention that increases underserved college students' success. *Peer Review, 18*(1/2), 31-36.

Supporting First-Generation University Students Series

PART 4: Fostering Social and Community Integration

Engle & Tinto (2008) highlight the challenges first-generation students face in becoming engaged socially in campus life, with barriers ranging from hours spent working off-campus for financial reasons, to difficulties adjusting to the emphasis on independence that is a hallmark of university culture. Yet, in their study, Soria & Stebleton (2012) found that first-generation students were more likely to be academically engaged if they felt like they belonged, arguing further that "the greater the sense of belonging to the academic and social community for students, the more likely it is that students will persist toward graduation" (p. 681). Here are a few suggestions on how to foster social and community integration for first-generation students:

Strategies	Teaching Suggestions
Design your class to fit a diverse range of student needs	Consider that students from college-educated families and those who are first-generation may understand and approach the classroom in vastly different ways, and may therefore have different needs.
Implement active and collaborative activities	Consider incorporating collaborative, active learning activities so that students can become acculturated to their peers and establish new friendships. Research has found that first-generation students may especially benefit from collaborative learning opportunities (Engle & Tinto, 2008; Soria & Stebleton, 2012, Loes et al., 2017). For examples of active learning activities, see our resource series titled "Activating Your Lecture" and "Strategies for Covering Content"
Encourage students to work with a variety of their peers in class	Implement active learning activities that ask students to collaborate with a variety of their peers, and not just their friends in class. Monitor the language that is used in class so that it does not create in-groups and out-groups in terms of prior academic experiences
Create opportunities for personal relevance	Have students discuss personal interests and personally-relevant activities, like extracurricular activities, volunteering, service-learning, and discipline-specific organizations and activities.
Encourage networking and professional development	Show interest in your students' extracurricular activities and professional networking efforts. This could include building a service learning component into your course, or offering extra credit for attending networking events or meeting with professionals in the field. Also, engage with students with outside-of-class activities, such as poster days, presentation opportunities, competitions, professional organizations, and independent study.
Help students build networks of support	Encourage all students to create networks of support (i.e., to "shrink" a larger campus into a more manageable community). Make sure they are aware of various cultural, ethnic, religious, hobby, or interest clubs on campus that can offer social and academic support.
If first-generation, self-identify	If you are a first-generation faculty member, publicly identify yourself as such and invite students to ask questions and learn more about your academic journey or visit you during office hours

Additionally, Stephens et al. (2012) found that the emphasis on independence in college can have adverse effects on first-generation students, who may come from community-based backgrounds where interdependence and collectivism is emphasized. To mitigate this:

Strategies	Teaching Suggestions
Help students balance school and home	First-generation students may have a strong sense of responsibility to their families (Covarrubias & Fryberg, 2015; Moreno, 2016). Show understanding as students learn how to best balance their school needs with their family needs.
Foster independence *and* community membership	Encourage students to explore how they can focus on their independent goals *and* still be part of the academic community and of their communities (Covarrubias, Herrmann, & Fryberg, 2016).
Recognize students strengths	Recognize and validate first-generation students' common strengths, such as a pioneering spirit, resilience, teamwork, and a strong commitment to earning a professional degree.

Adapted from: Lohman, 2015

Additional Resources

- *Q&A: Stanford's Hazel Markus*
- Grand Valley State University Resource on First Generation Students
- *First generation: Best practices for faculty. [UC Irvine]*
- *First year experience. [UCLA]*
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Supporting Transfer Students Series

PART 1: Understanding Students Who Transfer from 2-Year to 4-Year Institutions

Admission for transfer students at UCD has been steadily rising since 2009, with over 3,700 new transfer students enrolling in the 2016-2017 academic year (UC Davis Budget and Institutional Analysis, 2017). Transfer students represent a diverse collection of often nontraditional backgrounds and experiences; as such, these students have needs and expectations of their university educations that can be much different than their peers on more traditional pathways (Lester, Leonard, & Mathias, 2013).

Characteristics of Transfer Students

Given the lower costs of attending less expensive 2-year colleges, transferring is a popular option among students from a variety of underrepresented populations, including first-generation students, veteran students, and those from low socioeconomic backgrounds (CCCSE, 2012; Durosko, 2017; Fauria & Fuller, 2015, Mullin, 2012). 2-year colleges often offer much more flexibility in course scheduling, including night classes, which can make it easier for nontraditionally-aged students, students with dependents, and students working part- or full-time to attend. The Center for Community College Student Engagement [CCCSE] (2012) outlines the following major characteristics of community college students:

Status	Part-Time Students	Full-Time Students
Enrollment status	59% are part-time students	41% are full-time students
Work status	42% work at least 30 hrs/week	19% work at least 30 hrs/week
Dependents	37% care for dependents at least 11 hrs/week	29% care for dependents at least 11 hrs/week
Course flexibility	40% take evening or weekend classes	13% take evening or weekend classes

Additionally, CCCSE (2012) found that 73% of community college students reported that their goal in attending a 2-year institution was to transfer to a 4-year college or university, indicating that while not all community college students choose to go on to attend 4-year universities, the above characteristics remain largely representative of the students who do transfer.

The importance of recognizing your students' current life situations

Given that many transfer students face a variety of challenges outside of school that may have a significant impact on their success in school (e.g., CCCSE, 2012; Miller, 2013), one way instructors can help promote transfer students success is by being willing to work with transfer students if/when their extracurricular responsibilities interfere with their curricular ones. Below are a some additional extracurricular challenges transfer students may face, and some suggestions for how to respond supportively:

Challenges	Explanations	Teaching Suggestions
May have extensive and diverse demands on their time outside of school	Transfer students often commute, work many hours, and have unusual schedules. They may have part-time enrollment status, interruptions in their enrollment, and occasional impediments to their persistence due to a variety of factors.	Time management skills are important for the persistence of community college students. Help students with time management by designing assignments and timelines that allow for research or collaboration to be done outside of class or off-campus. Do not require the use of resources that are limited or only available

		at certain times. Consider time management resources provided by SASC.
May have dependents or other family demands	Transfer students may concurrently support dependents or may otherwise work through demanding family situations.	Be understanding when life or family gets in the way of a student attending class or completing an assignment on time. Consider offering partial credit for late assignments, or extra credit if appropriate. Encourage students to stop by office hours if they miss class or fall behind on coursework.
May face serious financial hardships	Financial issues persist for many students.	Unless students need to buy particular supplies or apps for your class, be cognizant of additional financial burdens. For example, consider using open source software (e.g., R, Textable), open source textbooks, and other free course materials if possible.
May be a veteran student or a nontraditionally-aged student	According to the US Department of Education, the average age for returning veteran students is 25 (cited in Durosko, 2017). Similarly, many transfer students may also be nontraditionally-aged students who have returned to school after a long absence. These students may feel out of place around their younger peers, or may have difficulty engaging socially on campus.	Try to vary your approach to working with students in a way that considers their age and life experiences. Encourage students to utilize their prior knowledge and experience in coursework, and to share their unique perspectives during class discussions. For example, you could build in time before major exams or projects for students to discuss study methods that have been helpful for them in similar classes, and develop problem-solving strategies for when they get stuck.

Additional Resources

- Transfer and Reentry Center
- Student Academic Success Center [SASC]
- SASC's Writing Assistance Services
- Veteran Success Center

In addition to this resource, we would also suggest referencing our "Supporting First-Generation University Student Series," as the experiences of transfer students often parallel those of first-generation students more broadly.

Citation

Center for Educational Effectiveness [CEE]. (2018). Supporting Transfer Students Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Supporting Transfer Students Series

PART 2: Strategies for Supporting Social Engagement with Transfer Students

Recent research suggests that transfer students considered social engagement to be important to their success in college (e.g., Lester, Leonard, & Mathias, 2013). Lester et al (2013) defined social engagement as "interacting with others broadly both inside and outside the university" (p. 211). However, researchers have also found that due to a variety of curricular and extracurricular factors, transfer students tend to be less socially engaged in their 4-year institutions than their traditionally enrolled peers, especially if they transfer late into their college careers (as juniors or seniors; Ishitani & McKitrick, 2010). Although, transfer students may primarily rely on social engagement outside of school for support, instructors can still play an important role in helping transfer students feel more socially connected to campus.

Strategies	Teaching Suggestions
Implement active and collaborative activities, and encourage students to work with a variety of their peers in class	Consider incorporating collaborative, active learning activities so that students can become acculturated to their peers and establish new study connections and friendships. Francis & Miller (2007) found that community college students may experience apprehension or anxiety communicating with others (including their peers). Consider using small group discussion activities in class to help students become more comfortable communicating and collaborating with others. For examples of active and collaborative learning activities, see our resource series titled "Activating Your Lecture" and "Strategies for Covering Content"
Encourage networking and professional development on and off campus	Show interest in your students' extracurricular activities and professional networking efforts. This could include building an experiential or service learning component into your course, having an expert as a guest speaker (in-person or video conference), or offering extra credit for attending networking events or meeting with professionals in the field. Also, engage with students with on campus, outside-of-class activities, such as poster days, presentation opportunities, competitions, professional organizations (local, national, international), and independent study.
Help students build networks of support	Encourage all students to create networks of support (i.e., to "shrink" a larger campus into a more manageable community). Highlight various cultural, ethnic, religious, hobby, interest, or discipline-oriented clubs on campus that can offer social and academic support. Research has shown that engagement in these activities can have a positive effect on their educational outcomes (Ishitani & McKitrick, 2010; Lester, Leonard, & Mathias, 2013). For students with off-campus commitments, the UC Davis All Events calendar contains a links to video streams of campus activities. Also, see Additional Resources for more campus partners.

Additional Resources

- Transfer and Reentry Center
- Student Academic Success Center [SASC]
- SASC's Writing Assistance Services
- Veteran Success Center

In addition to this resource, we would also suggest referencing our "Supporting First-Generation University Student Series," as the experiences of transfer students often parallel those of first-generation students more broadly.

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Supporting Transfer Students Series

PART 3: Strategies for Encouraging Academic Engagement in Transfer Students

Academic engagement is important to transfer student success in college (e.g, Lester, Leonard, & Mathias, 2013). Lester et al. (2013) defined academic engagement as "academic activities that include meaningful connections with faculty members as well as academic challenge and learning" (p. 213). The study also indicated that transfer students tended to view their engagement in academic activities as their primary focus, eschewing social activities on campus unless those activities were directly related to their classes, interactions with instructors, or opportunities within their majors. While both types of engagement are important, this resource will focus on encouraging academic engagement.

Strategies	Explanations	Teaching Suggestions
Design your class to fit a diverse range of student needs	Transfer students may represent a variety of ages, experiences, backgrounds, and knowledge; they may understand and approach the classroom in vastly different ways from each other and from their peers on more traditional pathways, and may therefore have more diverse needs within the classroom.	Consider designing activities that will allow for a variety of approaches and perspectives. For example, "learning journals" are term-long projects where students are provided with a set of open-ended prompts that facilitate the development of critical reflection skills by allowing them to consider their learning throughout the course. For sample learning journal prompts, see this conference poster from Richardson, Fatherly, and Thomas (2017).
Create a class attendance policy that will allow you to be flexible when needed	Consistent class attendance is important for sustaining success with community college and transfer students. However, keep in mind that transfer students may have significant extracurricular demand on their time that might at times make attending class difficult.	Try to be flexible when possible, especially if your policy connects attendance with a grade. For example, you could allow students to miss up to XX number of classes without loss of attendance points.
Encourage students to participate and ask questions during class discussions	Fauria & Fuller (2015) found that transfers students who participated in class discussions or asked questions during class were more likely to be able to persist to graduation.	Try to create a learning environment in your classroom, where students' responses (even incorrect ones) are acknowledged and considered. For example, if a student provides an incorrect response, ask to see if another student can provide additional information or "help" clarify the first student's response.
Encourage students to set clear goals, both for your course and for the future	Have a discussion with your students about what they will know, what they will be able to do, and the types of attitudes and social/career skills that they will develop by the end of your course.	Consider conducting a diagnostic assessment (e.g., a short quiz or in-class writing exam) at the beginning of the term at gauge your students prior knowledge and experience. Give your students time to ask questions and/or clarify your expectations. You might begin by clarifying your expectations and discussing how the course was designed for student success.

	Martin, Galentino, & Townsend (2014) found that transfer students who set clear academic and career goals for themselves were more likely to be successful in their 4-year universities.	Have students write personal and career goals that they want to achieve during the term, and then have them connect those goals to the learning outcomes of your course.
Create opportunities for personal and career relevance	Have students consider how your course will fit into their degree programs, and more importantly, their future career plans.	Encourage them to integrate the concepts of your course with their personal/career interests and activities (e.g. work, extracurricular activities, volunteering, experiential- or service-learning, and discipline-specific organizations and activities).
Implement authentic activities and assignments	Consider designing your course around authentic assignments and practical tasks. The goal of these assignments are to help students not only understand *what* they are learning, but *why* they are learning it, and how it will *apply* to their work in the future. Consider designing and implementing projects that mirror real world tasks completed by professionals in the field.	Try designing inquiry- or problem-based projects, or other authentic assignments that provide students with opportunities to engage in the types of writing and problem-solving common in their disciplines and/or careers. For example, you could provide students with a case study describing a real world and/or field-related problem, and have them work to teams to develop a solution. For more suggestions on developing inquiry-based projects, see our "Strategies for Covering Content Series".
	Assignments that allow students to interact with established members of their discipline or professional in their career area are also effective authentic assignments.	If possible, offer experiential or service learning opportunities, and encourage students to explore internship opportunities outside of class, as these (CCCSE, 2012; Ishitani & McKitrick, 2010).
Encourage students to make use of their prior knowledge and experiences	Transfer students may have extensive prior experiences and knowledge, particularly veterans and nontraditionally-aged students (Durosko, 2017). Tap into students' prior experiences and prior knowledge and help them explore how they can apply it to the new content of your course.	For example, you could have students complete a short survey or diagnostic where they outline their prior experience with the course subject, and then use the results to design activities or homework tasks where students can apply that knowledge to course material.

Additional Resources

- Transfer and Reentry Center
- Student Academic Success Center [SASC]
- SASC's Writing Assistance Services
- Veteran Success Center

In addition to this resource, we would also suggest referencing our "Supporting First-Generation University Student Series," as the experiences of transfer students often parallel those of first-generation students more broadly.

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Supporting Transfer Students Series

PART 4: Strategies for Encouraging Instructor-Student Interaction with Transfer Students

Research has found that for transfer students, interactions with instructors are a particularly strong indicator of student learning (Fauria & Fuller, 2015; Levin et al., 2010; Lundberg, 2014). Fauria & Fuller (2015) note that while "transfer student persistence and completion rates towards baccalaureate degree attainment continue to be lower than non-transfer student persistence and completion rates" (p. 40), they also found that interactions with instructors through feedback and direct encouragement had a positive impact on transfer students' cumulative GPAs. Below are a few suggestions for how to foster supportive interactions with transfer students:

Strategies	Explanations	Teaching Suggestions
Make feedback an integral part of class	Fauria & Fuller (2015) found that transfer students who received *timely* written or oral feedback on their academic performances were more likely to persist to graduation.	Consider making it an integral part of your class activities for students to seek help and/or feedback. Endeavor to provide feedback in a timely manner (within a week, depending on class size), so that students have an opportunity to integrate your comments into their next assignment. For more feedback strategies, see our "Effective Feedback Series."
Encourage students to come to office hours, and create opportunities for student-instructor interactions	Transfer students may feel uncomfortable contacting instructors if they need help (CCCSE, 2012), or may have difficulty making time in their schedules to attend office hours.	Reach out to students who seem to be struggling in your class (or work with a TA do so). Remind your students about your office hours frequently. For example, you could give students an idea of things they can do during office hours to encourage them to come (e.g., ask for additional feedback, get strategies for solving problems, discuss research and/or job opportunities, etc.).
Make your students aware of your high expectations for them	Research has shown that educational outcomes for transfer students are improved when instructors hold students to high standards, but help support students in achieving those standards (e.g., Fauria & Fuller, 2015; Levin et al., 2010).	Encourage students to be self-motivated and hardworking, but remind them that you are there to support them if they need help. For example, Fauria & Fuller (2015) suggest challenging your students to meet your high expectations by working harder than they think they can, but make sure to also respond promptly with feedback or answers to questions. Also, consider outlining your expectations on topics like attendance, participation, and teamwork in the syllabus and/or the Canvas site.
Encourage students to seek help outside of the classroom	Help students navigate the higher education system and identify resources where they can receive the help they may need.	Include information on various university support services in your syllabus (see below in Additional Resources, as well as our Campus Resources Guide for transfer-specific services).

Self-identify if you were a transfer student	If you were a transfer student yourself, publicly identify yourself as such; this can help your students feel more at ease in your classroom, while also providing them with a potential mentor.	Invite students to ask questions and learn more about your academic journey or visit you during office hours to discuss your experiences in more depth.

Additional Resources

- Transfer and Reentry Center
- Student Academic Success Center [SASC]
- SASC's Writing Assistance Services
- Veteran Success Center

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DESIGNING & ORGANIZING THE COURSE

Active Learning Classrooms

Course Design

Hybrid & Online Learning

Active Learning Classrooms Series

PART 1: Basic Principles for Teaching in an Active Learning Classroom

Active Learning Classrooms (ALCs) are increasingly prevalent on college campuses. This model dates back nearly 25 years, and there is significant evidence to support the institutional investment in these kinds of spaces (see below). While there are various institutional examples of these classrooms (e.g., SCALE-UP, TEAL, TILE, etc.), all ALC models share a consistent emphasis on using flexible classroom design as a method for incorporating more active learning. Although, it is true any classroom can be "active," an ALC features tables (often round), multiple writing surfaces (e.g., whiteboards), and enhanced technology (e.g., robust wireless connectivity, numerous monitors). Below are some "first steps" to consider if you are a new instructor in an active learning space or a seasoned instructor looking to solidify the basics.

Figure 1: Active Learning Classroom—Olson Hall, Room #250, UC Davis

Common Questions	Explanation	Teaching Suggestion
What is the first step?	Instructors with experience teaching in ALCs always emphasize intentional preparation before the first class in the space.	Preparation includes revisiting the course learning objectives, activities, and assessments, but also getting a sense of the space itself, so visiting the classroom before you teach in it is a good idea.
Will I be able to cover as much content?	One of the biggest concerns instructors often have with adopting an ALC model is that they may have to trade-off content "coverage" for active learning. The concern is that it will be impossible to address all of the course content if not delivered to the students during class time. However, research suggests that students can learn more by engaging with the subject area through their own self-defined research and projects (Davidson, 2017).	Carefully review your learning objectives and articulate them in a manner that aligns with course goals. For example, consider how much of class time is spent reviewing the textbook versus time spent applying its concepts. While it will take time to develop materials, the exchange of depth of learning for coverage of content is one instructors are frequently most excited about. For more suggestions on incorporating active learning while also covering necessary content, see resources on "Covering Content" and "Activating Your Lecture."

What if students resist?	Students' resistance to active learning is well documented; however, many instructors use this resistance as a teaching moment to get students to consider how learning works, through an activity where students reflect about their own goals (Davidson, 2017).	For example, an article by Smith (2008) provides a framework for an activity that instructors can use to engage their class on the first day. The activity asks students to consider reasons why they enrolled in college and what they want out of the experience. Many instructors use this activity to illustrate the following points: learning is social; it takes practice, which is often challenging; and it requires frequent feedback. They close with the point that ALCs are specifically designed to foster conditions that promote the previous points. For more suggestions on encouraging motivation, see our resource on "Student Motivation."
What are some other ways I can generate student buy-in?	It can be helpful to consider why students may be resistant to active learning activities. For example, many students have little experience with these types of activities, and therefore feel more comfortable with the routines they are more used to (e.g., receiving information passively).	One way to elicit buy-in from students is to use student performance data from previous version of the class to show learning gains in ALCs. (Instructors who do not have previous data can point to academic papers and studies whose findings support active learning (e.g., Freeman, et al., 2014; Prince, 2004). Seasoned ALC instructors also suggest routinely mentioning the merits of active learning and the intention and relevance behind the pedagogical methods throughout the length of the term.
Should I redesign my entire course?	When preparing to teach in an ALC, especially for the first time, take a measured approach. Sometimes a full course redesign makes sense, but often it is better to make several smaller changes and adapt as you and your students become more comfortable in the space (Petersen & Gorman, 2014).	Research suggests (Walker, Cotner, Baepler, and Decker, 2008) that a balance between active learning and more traditional approaches (e.g., lecture) can be a sweet spot for those teaching in ALCs. For example, Smith et al. (2005) suggest breaking up your lecture into smaller parts, and using brief active learning activities to bookend each part. See our resource on "Activating your Lecture" for more on this lecture model.
What about all of the technology?	Most ALCs will have the same instructor stations as traditional classrooms, but the connectivity is vastly improved so that students' devices have consistent web access. Due to the robust connectivity, instructors face increasing potential for student distraction.	Many instructors place a technology policy in their syllabus and reiterate that the amount of activity that will take place during class will not allow students to engage in social loafing. Other instructors simply indicate when technology is and is not going to be used. The flat floor of the ALCs often makes monitoring student technology use a bit easier, especially if the instructor enlists help from teaching assistants (graduate or undergraduate).
Where can I find help?	Enlisting education specialists, instructional designers, and faculty developers can reduce anxiety and provide you with the pedagogical tools needed to successfully teach	You can consult with the education specialists at CEE and/or with the technology experts at ATS, for feedback on your plans for teaching in an ALC. The staff are willing collaborators and can

	in an ALC (Baepler et al., 2016; Van Horne et al., 2014).	help you think about innovative course design, methods for forming groups, develop engaging activities, ensure assessments align with outcomes, and can make sure the technology in the room is accessible to all students.

Citation

Center for Educational Effectiveness [CEE]. (2018). Active Learning Classrooms Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Active Learning Classrooms Series

PART 2: Strategies for Effectively Managing in the Active Learning Classroom

Teaching in an active learning classroom can be an exciting yet challenging experience for instructors. One of the main differences between a traditional classroom and an active learning classroom is the design of the space. For example, in place of a podium at the front of the room and rows of desks bolted to the floor, an active learning classroom may have a podium in the middle of the classroom and tables surrounded by rolling chairs, among other configurations (Baepler et al., 2016). Additionally, because students may be unfamiliar with both these classrooms and the active learning activities they afford, it can be important to establish course policies that address issues like communication and personal technology use. Here are a few strategies for how to manage active learning classroom spaces and course policies:

Strategies	Explanation	Teaching Suggestion
Clearly define the goals of each class.	Starting class with a clearly defined objective(s) will shape the class and allow you to bring the discussion back to these goals if necessary.	Start each class by writing the day's objectives on the board, or include a slide with this information in a PowerPoint. Refer back to these objectives as you move between tasks during class.
Identify a central location(s) to stand.	Some ALCs have the instructor podium at the middle while others do not. This means that your back may be to some students at times, which may feel strange. Telling your students where you plan to present and that you may not be facing them at all times can mitigate any strangeness, and will help direct their attention and help to regain focus after small group work.	Consider circling around the podium so that you can see all students throughout the class. Also, consider using apps like Doceri for the iPad so that you can move more freely around the classroom while still changing slides and/or annotating diagrams and writing equations.
Circulate and facilitate.	ALCs are designed so instructors can check-in with teams during collaborative work. Instructors can also use guided instructional practices like step-by-step activities to facilitate learning when teams are problem-solving.	Some students may not be used to an active learning format that prioritizes group work. Therefore, it is important that instructors have an active presence in the classroom by circulating between groups and guiding learning when groups get stuck. If you have TAs, consider breaking the classroom up into zones so that all tables have access to an instructor.
Establish policies for communication.	Setting students expectations for communicating with you, and other instructional members (e.g., teaching assistants) is important. Students may expect immediacy, but need to understand there are demands on your time.	Consider outlining your policy for answering emails and/or communicating via Canvas or other forums, such as Piazza, in your syllabus. Emphasize to students that while you may not respond immediately, you will get back to them, and suggest that they contact you again if you do not respond within 2 days.
Establish policies for technology use.	With the increasing presence of student-owned internet-capable devices in the classroom, digital	Establish a policy that will address digital distractions like texting and social media use, and circulate around the room to help

	distractions are a real concern for any instructor in any classroom (Taneja, Fiore, & Fischer, 2015). This can be especially true in active learning classroom, where technology may play a larger part in in-class student activities.	keep students on task. If students are using technology in the classroom, clarify why you have implemented the policy, how the technology will advance your teaching/their learning, how it will be enforced, whether it complies with ADA regulations, and if an "all or nothing" approach is appropriate.

Managing discussions in the active learning classroom
Small and large group discussions can help students engage more actively with class content than a traditional lecture, and can to gains in understanding of course content. For example, Smith et al. (2009) found that students were more likely to provide correct answers to clicker quizzes when they engaged in peer discussion about those questions. However, managing classroom discussions can be challenging, especially for larger classrooms. Here are a few suggestions for how to facilitate small and large group discussions in active learning classrooms:

Strategies	Explanation	Teaching Suggestion
Establish ground rules for discussions.	These ground rules can help ensure that everyone gets a chance to participate, and that the discussion is respectful of all students' voices. Additionally, collaborating with students to determine and establish ground rules can be one way to ensure all students feel comfortable, respected, and included.	Possible ground rules include: listen respectfully, without interrupting; respect one another's view; criticize ideas, not individuals; avoid blame and speculation; avoid inflammatory language. When a 'hot moment' comes up, remind students of these guidelines.
Build structure into a discussion.	When discussions are too open-ended, the conversation can tend to steer off topic and content instruction can get lost. Building structure into a discussion so it's not just free form for students to say anything can help to ensure that the discussion is fruitful for both instructors and students.	Some examples of discussion structures include assigning specific questions for students to discuss in small groups and then turn in a summary of their discussion, or assigning students to investigate and present different sides of a debate or issue to the rest of the class.
Talk to students about how to make valid arguments and substantiating claims using evidence.	To promote civility and liveliness, have students link their claims to evidence. Model citing the literature/research in your own responses and allow them opportunities to practice doing so.	When possible, ask students to tie their responses to specific course readings, theories, and major concepts. For example, you could have students respond to discussion questions in small groups, and require that they cite course readings in their summaries.
Try to clarify the student's point.	Sometimes, students may intentionally or unintentionally say something offensive during a class discussion. It is important to address these moments in a way that avoids singling out the speaker, but ensures your students understand what is and is not appropriate.	Before reacting to what you interpret to be insulting or inappropriate, give the student a chance to explain by saying "what do you mean by X?" or "I heard you saying X, is that what you meant to say?" For additional suggestions on managing difficult moments in discussions, see our resource on "Charged Discussions."
Use discussion strategies that	It can be difficult to manage students' attention during discussions, especially given the	One strategy to encourage listening is to require the next speaker to paraphrase the ideas expressed by the previous

require students to listen carefully.	distractions presented by digital devices. Davidson (2017) suggests incorporating metacognitive activities that ask students to reflect on what they have learned through the discussion.	speaker. Davidson (2017) also suggests taking the last three minutes of each class to have students write and turn in an "exit ticket." This could be one question they still have about the day's topic, or one thing they learned in class. You can then use these tickets to begin a discussion in the next class.

Citation

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Course Design
PART 1: How Do Students Learn?

Research on teaching and learning demonstrates that clear course structure and teaching clarity increases student motivation, persistence, and improves performance and grades, with particular impact on first-generation and low-SES students (Blaich & Wise, 2014; Pascarella & Blaich, 2013; Wang et al., 2015). More specifically, Roksa et al. (2017) found that nearly two-thirds of the effect of clear and organized instruction on academic performance is accounted for by three mechanisms: 1) faculty interest in teaching and student development; 2) academic engagement; and 3) academic motivation. Furthermore, less academically prepared students benefited more from exposure to clear and organized instruction (Roksa et al, 2017).

Before focusing on teaching, this series necessarily first examines *how* students learn. In part two, we then describe a model of course design that supports this type of student-centered learning. The series concludes with a template to use for organizing and planning instruction based on this model.

How do Students Learn?
Ideally, effective teaching meets the learning needs of each individual student. As instructors, we aim to help all of our students learn and succeed. By basing our teaching on the following principles of *how* students learn, we are best equipped to support diverse populations, teaching formats (e.g., online, in-person) and varied class sizes:

- **Students experience deeper learning and retain more information when they are *actively engaged* in the learning process**. Student engagement may include interaction between the student and the instructor, between the student and content, and between the student and their classmates. It may involve activities in small groups or pairs, individual student reflection or writing, small or large group discussion, problem solving, games, case studies, debates, role playing, and more.

- **Students learn best through *differentiated practice*.** Students benefit when they can learn using many parts of the brain, and by engaging with what they are learning in a variety of ways. All students benefit when we create opportunities for them to interact with material and demonstrate their knowledge in different manners. Depending on the given content, some modes of learning can be more effective than others. Provide opportunities for students to interact with the material visually, verbally, and kinesthetically. Learning about and reinforcing content through differentiated practice benefits all learners. Many think this is accomplished through the combination of "lecture and lab" (or section). However, both lecture and lab settings can incorporate differentiated practice to reinforce and build on each other.

- **Students learn through *guided practice*.** Learning something new requires guidance and a lot of practice. As an instructor, you can provide students with scaffolding that allows them to build upon previous understanding to process, integrate, and store new knowledge alongside pre-existing knowledge. Scaffolding refers to assist and or guidance that helps students achieve outcomes that they may not be able to accomplish independently at first. It may be helpful to follow the "I do – we do – you do" model: (1) demonstrate or introduce the process (I do); (2) work through or solve an example with your students together providing guidance and feedback (we do); and (3) have students complete the task on their own (you do). This model provides scaffolding, repetitive practice, and eventual independent accomplishment.

- **Students need *ongoing feedback* about their learning**. Feedback is essential for learning, yet students are often only provided feedback on what they know and don't know on formal, graded assignments. Feedback may come from instructors, peers, and self-assessment, and is most helpful when provided frequently and informally. Frequent informal feedback on student

understanding encourages and rewards meaningful learning, helps prepare students by making them aware of what they do and do not know, and can help you know where your students stand.

Additional Readings & Resources

- For this content via video How Students Learn

Citation

Center for Educational Effectiveness [CEE]. (2019). Course Design Series. Just-in-Time Teaching Resources. Retrieved from http://cee.ucdavis.edu/JITT

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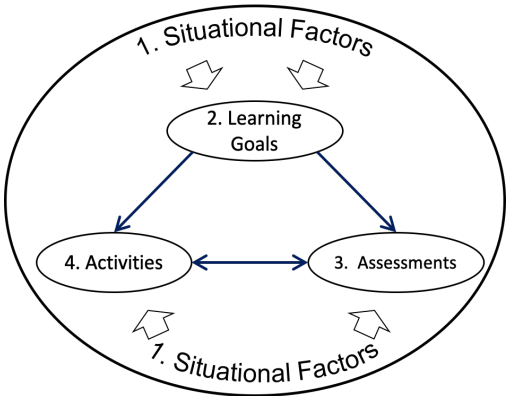
Course Design

PART 2: Integrated Course Design

What is it?

A course plan provides a roadmap for the instructor of *what students will learn* in class and *how class time will be used* effectively to achieve learning. Traditionally, course planning starts with the content, which focuses attention and effort on what the instructor will teach and how they will teach it. In contrast, a more integrated design – a learner-centered approach to course planning – begins with an examination of situational factors and works "backwards" from traditional planning (Figure 1).

Figure 1: Integrated Design



How Do We Do It?

1. **Consider situational factors.** Potentially critical factors can inform course design.

Begin with the *context of the teaching and learning situation*. Fink (2005) suggests answering the following questions:

- How many students are in the class?
- Is the course at the lower division, upper division, or graduate level?
- How long and frequent are the class meetings?
- Will the class be delivered live, online, in a laboratory, etc.?
- What physical elements of the learning environment will affect the class?

Next, it is important to identify *characteristics of the learners* – life situations, professional goals, prior knowledge and experiences, and expectations of the course.

A Deeper Dive Into Characteristics of the Learners. . .

Black, Indigenous, and People of Color (BIPOC)
Black, Indigenous, and People of Color (BIPOC) is an inclusive term which highlights the identities and distinction between Black and Indigenous people, in contrast to other people of color. For more on where the term comes from, see this recent NYT article. On an increasingly diverse campus, such as UC Davis, these student senrich instructional programs and courses. Approximately 77% of all degree-seeking undergraduate students (with known race/ethnicity) at UCD identified as other than White/Caucasian in Fall 2019 (UC Davis Student Profile, 2020). Of all US Citizen and Immigrant undergraduate students, 71.8% identified as BIPOC. Classrooms are not culturally-neutral spaces as "students cannot check their sociocultural identities at the door" (Ambrose et al, 2010, p. 169-170). It is therefore crucial that instructors engage in pedagogical practices that acknowledge, celebrate and are

inclusive of students with various backgrounds, experiences, and identities. Creating inclusive spaces within the classroom is a vital enterprise that can help ensure that equitable opportutnites exist for all students to thrive.

First-Generation Students

A first-generation student is identified as a US student whose parents/guardians have not received a four-year, US bachelor's degree (Toutkoushian et al., 2016). While adding their unique perspectives to the institution, first-generation students tend to experience a variety of educational, financial, and social barriers that make successful completion of a bachelor's degree more difficult in comparison to peers with college educated parents/guardians (Covarrubias & Fryberg, 2015). Pascarella et al. (2004) emphasize the importance of academic and classroom engagement for first-generation students. They contend that first-gen students may benefit from their academic experiences comparatively more than their peers with college educated parents/guardians because these experiences build cultural capital they might otherwise not have access to. Research also validates the importance of providing students with resources for accessing academic support, both in and out of the classroom (Brazil-Cruz & Martinez, 2016).

Transfer Students

Transfer students represent a diverse population often from nontraditional backgrounds (i.e., over 25, single parents, part-time) and with diverse life experiences, who contribute unique perspectives to the classroom. Transfer students may have needs and expectations of the university and for their educational experience that are different than their peers entering college directly from high school (Lester, Leonard, & Mathias, 2013). Given the cost savings associated with attending a community college, transferring is a popular option among students from a variety of underrepresented populations, including first-generation students, veteran students, and those from low socioeconomic backgrounds (Durosko, 2017; Fauria & Fuller, 2015). Depending on their life experiences, transfer students may have commitments and responsibilities outside of school that may significantly impact school performance, instructors can help promote success by communicating and being willing to work with transfer students if or when their commitments and responsibilities (e.g., employment schedules, family responsibilities, etc.) interfere with their school commitments and responsibilities.

International Students

Increasingly, international students from across the globe are coming to the US, attracted by the high-quality education offered at many universities (Turner, 2015). In the 2019-2020 academic year, about 17% of undergraduate enrollments at UC Davis were international students (UC Davis Student Profile, 2020). International students contribute to the diversity of our campus and enrich classroom environments with their unique experiences and perspectives. In addition to the academic challenges international students face, they may also experience a variety of social and cultural challenges as they navigate attending school in a new country. Their transition to attending school in the US can often be overwhelming for international students, who may experience challenges communicating with instructors, staff, and peers. They may also experience culture shock, social isolation, homesickness, and other difficulties adjusting to a new culture (Wu et al., 2015). Instructors can help by providing opportunities for intergroup interactions, such as small group discussions or projects.

Multilingual Students

Multilingual students come from a variety of backgrounds in terms of language, culture, immigration/visa status, and time spent living in the US, and this diverstiy benefits the instructional community. The majority of international students are bi or multilingual, with some having taken English classes throughout their schooling. Others may may have limited or interrupted language and literacy instruction in both their home languages and English (e.g., refugees). Another group, common in California, are long-term permanent residents and the children of immigrants (Generation 1.5) who arrived in the US as young children, learning English in the K-12 school system (Menken, 2013). The linguistic backgrounds of multilingual students are often quite varied. Because of their highly varied experiences with English language and literacy instruction, it is important that instructors recognize the individual needs of multilingual students and resist taking a one-size-fits-all approach to the classroom (CCCC, 2014).

After considering the characteristics of the learners, we can couple that with some considerations about *ourselves*.

- What are our own beliefs and values of teaching and learning?
- What is our teaching philosophy?
- What are our unique strengths and weaknesses as educators?
- What implicit biases may influence our teaching?
- What type of climate do we want to create?

A Deeper Dive Into Considerations about Ourselves. . .

Our Teaching Philosophy

A teaching philosophy is one's personal values and beliefs about teaching and student learning. Instructors can have different teaching philosophies and still be highly effective educators. What works in one classroom or with one level of learners may not work in a different context. However, research on education proves the necessity of an **inclusive student-centered** approach. In short, a **strong** teaching philosophy will: place **students** at the center of the learning process and focus on student **needs** and student **outcomes.**

Our Implicit Biases

Implicit bias is defined as the "attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. Activated involuntarily, without awareness or intentional control. Can be either positive or negative. Everyone is susceptible" (Kirwan Report, 2017). Within a higher education context, these biases often appear in the form of harmful stereotyping, particularly when it comes to perceived academic ability, identity, or viewpoint. For example, some instructors may unconsciously believe that certain groups are not as capable as others, which may unconsciously influence classroom interactions (Ambrose et al., 2010). All of us can engage in this type of "unthinking discrimination" without even being aware. Still, implicit bias has the potential to impact behavior, yet is malleable and can be "unlearned." This matters because cumulative effects can translate to: marginalized or under-utilized potential and talent; retention in classes or fields-of-study; and inhibited team work and collaboration (Wilkerson, 2013; Dasgupta, 2013; Roos, et al., 2013).

Our Classroom Climate

Classrooms are not culturally-neutral spaces as "students cannot check their sociocultural identities at the door" (Ambrose et al., 2010). It is therefore crucial that instructors engage in pedagogical practices that acknowledge, celebrate and are inclusive of students with various backgrounds, experiences, and identities. This can help ensure that all students have equal opportunities to thrive. Ambrose et al. (2010) note that thinking critically about how your course climate promotes or hinders student learning is important in any classroom. Course climate is subject to a host of different interacting factors, including:

- faculty-student interaction;
- the tone instructors set;
- instances of stereotyping or tokenism;
- course demographics;
- student-to-student interaction;
- the range of perspectives represented in the course content and materials.

Taken together, we can use all these types of situational factors to inform the design process.

2. Define learning outcome(s) and prioritize which are most important. Write concrete and measurable learning outcome(s) that describe what students will learn and be able to do by the end of a specific course. As written in a syllabus, for example:

Student Learning Objectives
(As a result of this course, what do I want students to be able to do?)
Students will be able to:

- Understand and actively engage with sociological concepts and terms
- Evaluate the credibility of claims/sources
- Analyze social problems through a sociological perspective
- Evaluate responses to social problems
- Think critically and propose solutions to social problems
- Interpret data, reason quantitatively, and draw conclusions to make evidence-based arguments
- Reflect on their thinking and learning
- Communicate effectively, both orally and in writing
- Collaborate effectively within teams

There are several benefits to starting with learning outcomes, first, formulating learning outcomes will help you focus what material you will cover during the course. Second, learning outcomes ensure we know what type of understanding we are checking for and that the activities we are doing are purposeful and can help students learn what we want. Third, clearly articulated learning outcomes communicate expectations to students about what they should be able to do by the end of the course. Students may refer back to these learning outcomes to prepare for exams or projects.

3. Decide the assessment(s) you will use to check for understanding and achievement. After you have written your learning outcome(s), determine how students will demonstrate understanding and accomplishment of the outcomes. For example, returning to the previously mentioned learning outcomes (see example from syllabus above), the breadth of assessments for the course include:

Course Assessment
(How will I know if students have met the course learning objectives?)

Reading Quizzes	10%
Final Exam (cumulative)	15%
Group Project	10%
Part 1 of Paper (Social Problem)	5%
Part 2 of Paper (Response)	5%
Part 3 of Paper (Revised)	15%
Active Engagement Activities	20%
Data Investigations	10%
Reflection Assignments	10%

A Deeper Dive into Assessment . . .

Writing Effective Test Questions

Tests and quizzes are among the most prevalent forms of assessment instruments in use on college campuses. Whether **summative** (assessment of student learning at the conclusion of a unit, course, or program) or **formative** (assessments meant to provide timely and effective feedback during the term or class), tests and quizzes represent a key form of information for students and instructors about learning in the classroom (McKeachie & Svinicki, 2013). Research suggests that while well-designed multiple-choice questions (MCQs) can be used to assess multiple dimensions of Bloom's Cognitive Process Domains, most MCQ tools focus on lower-order skills like remembering and understanding (Momsen et al., 2010). However, well-constructed MCQs can be used to assess higher-level thinking such as "apply" or "analyze," by asking students to apply course concepts through realistic problems or scenarios (Freeman et al., 2011).

Providing Effective Feedback
A primary purpose of effective feedback is to help students learn, so it's important that students get feedback as part of an ongoing formative process in which they have the opportunity to implement changes (Shute, 2008). Forms of feedback vary and may include a completed rubric grid or written comments on a problem set or draft paper. Effective feedback can lead to more self-directed and autonomous learners, thinkers, and engaged members of society. Research has shown that the most effective feedback is focused, forward-looking, and timely (Ambrose, et al. 2010; Hyland, 2013). Feedback should be formative, communicating how students are doing in relation to stated learning outcomes/goals, and what specific steps they should take to improve. They should then be expected to demonstrate how they incorporated the feedback into subsequent assignments. Students should receive feedback both frequently and in a timely manner (Hyland, 2013; Wiggins, 2012). A combination of positive feedback and constructive (how students might improve) feedback motivates students to learn, the primary purpose of effective feedback.

4. Determine the classroom activities that you will use to help students acquire the skills and knowledge needed to successfully demonstrate mastery of the learning outcome(s). Activities should engage learners with the content, with peers, and with you. For examples and adaptations for online learning:

Activities that Actively Engage Students
Pause for Reflection: During lecture, particularly after presenting an important point or key concept, pause to allow students to think about the information or check their notes to identify points that may be unclear. You might also write general "pause for reflection" questions and share them with your students. This is one way you can encourage your students to reflect upon and synthesize what they have just learned. *Adapted for Online Learning:* Pause during a mini-lecture or Zoom presentation.
Minute Paper: Ask students to spend a minute (or a few minutes) writing short responses to a question or questions meant to gauge their understanding of a class concept. Afterwards, students can share verbally in a whole class discussion, post their response to a discussion board, submit their response as a Canvas assignment, or share during study or discussion session. *Adapted for Online Learning*: You could also use a similar activity during online office hours. For example, if you have several students in your Zoom room at once, you could direct Student A to take a couple of minutes to try to write out a response to a question they have while you conference with Student B. Then, you can have Student A "unmute" themselves and verbally debrief their answer with them.
Muddiest Point: Towards the end of a lecture or lab session, ask students to write a short note explaining which point from that day's class or the unit is most unclear to them. Use this feedback from students to inform how you teach or review the next class. *Adapted for Online Learning:* Try the same strategy for a mini-lecture video or an online module. If you lead online discussion sections, you might ask students to post these comments to a discussion board or email them to you prior to your discussion session, so that you can address these areas in your session. Even if you aren't leading any sort of live session, you might ask the students in your sections to post or email "muddiest points" to you weekly, and then prepare a short clarifying video or handout based on their responses.
Think/Write-Pair-Share: For this activity, pose a question and give students a few minutes to think about the question and then write down their response. Then have students pair up and share their ideas. This is a good strategy to keep students focused and engaged during long lectures. *Adapted for Online Learning*: You can do pairing activities on Zoom via break-out rooms during synchronous meetings. Students can also share responses via text, email, or the Canvas discussion feature with other students in the class.
"You are the professor" Question Creation: Assign groups to create questions that help check for understanding of concepts. Students can do this during discussion sections or outside of class via a

shared Google doc through the "Collaborations" tab on Canvas. If they come up with good questions, you might incorporate them as possible exam questions or questions for a study guide. *Adapted for Online Learning*: You can do the same activity synchronously via Zoom in breakout rooms or asynchronously with Google docs.
Role playing: Ask students to "act out" a position or argument to get a better idea of the concepts and theories being discussed. Role-playing exercises can range from the simple to the complex (e.g., skeptic, community member, scientist, historical figure, etc.). Volunteers can do this during a lecture, where you can provide feedback for the entire class. This is also a good activity for discussion session. *Adapted for Online Learning*: While you can do this via Zoom, you could alternatively ask students to record and submit videos of them speaking from the perspective of the assigned role. If you choose to do this, keep in mind that students will have varying degrees of access and familiarity with technology. It would be wise to provide an alternative activity if they are unable to produce a video such as submitting a script or a "letter to the editor" written from the perspective of that role.
Jigsaw Discussion: Divide the class into small groups, each of which is assigned a different task. For example, each group might be asked to summarize the key points of one article or solve a different equation. Each group completes their task. Then, new groups are formed, each composed of one member from each of the original groups (so all group members in the new group have completed a different task). Students then take turns presenting their work to the rest of the group. In this exercise, each student is an 'expert' in one task and exposed to all other tasks. This is an ideal way to expose students to many different readings, whereby students learn from their peers about myriad readings and teach their peers about the one they have read and have "expertise." *Adapted for Online Learning*: Again, you could also facilitate this activity synchronously using breakout groups via Zoom or asynchronously via shared Google docs.
Experiential Learning: Online content and a series of online learning activities are created to guide students, alone and in groups, to *see/experiment, learn, compare, critique, share, and apply.* Experiential learning activities include online/virtual field trips, study abroad, internships/apprenticeships, practicums, service learning, peer/student teaching, and volunteer experiences. With technology in class, student can explore sites you have curated as rich for learning your content.

Finally, check for **alignment and integration** by ensuring that assessments and activities will help students achieve the learning outcomes. These integrated components work to support and reinforce each other. Appendix 1 presents a planning template that synthesizes all four components of Integrated Design and can be used for either face-to-face courses or transition to remote/online courses.

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Additional Readings & Resources

- For information and resources about assessment process Student Learning Outcomes Assessment

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Course Design Series

APPENDIX 1: Integrated Course Design Template

Course:	**Topic:**	**Week/Dates:**
What are the ***situational factors*** you might consider when planning for your course?	What is currently working in face-to-face instruction?	

Learning Outcomes What should students be able to do by the end of the unit/module?	**Assessments/feedback** How will you determine if students are achieving the learning outcomes? How will students get feedback about their learning? Consider the role of both formal and informal assessments.		**Learning Activities** What learning activities will students engage in to help them meet the learning outcomes? How will they interact with each other, the instructor, and the content? Which activities are best suited for face-to-face or remote/online & how will they be integrated?		**Tool Needs** What tools (including technology and other materials) are needed to create the unit or support the learning activities and/or assessments?
	Face-to-face	*Remote/Online*	*Face-to-face*	*Remote/Online*	
1.					
2.					

Course:	**Topic:**	**Week/Dates:**

Learning Outcomes What should students be able to do by the end of the unit/module?	**Assessments/feedback** How will you determine if students are achieving the learning outcomes? How will students get feedback about their learning? Consider the role of both formal and informal assessments.		**Learning Activities** What learning activities will students engage in to help them meet the learning outcomes? How will they interact with each other, the instructor, and the content? Which activities are best suited for face-to-face or remote/online & how will they be integrated?		**Tool Needs** What tools (including technology and other materials) are needed to create the unit or support the learning activities and/or assessments?
	Face-to-face	*Remote/Online*	*Face-to-face*	*Remote/Online*	
3.					
4.					
5.					
6.					

Hybrid Learning Series

PART 1: What Is It and Why Does It Matter?

Technology-enhanced courses occur across a continuum ranging from low to high integration of technology. Traditional course structure is the **face-to-face model** whereby all activities and instruction occur in person in a "brick-and-mortar" classroom with minimal technology use, aside from slide decks and the learning management systems (e.g., Canvas). In the **blended learning model**, all instruction occurs face-to-face, but technology is used to facilitate activities, assess students, or deliver content without a reduction in face-to-face learning time. Effective blended models are generally inclusive of technological support of learning objectives, alignment of face-to-face and online components, and integrated active learning (Linder, 2017; Picciano, 2009; Glazer, 2012). Below are some additional modes of instruction that are prevalent in higher education.

The **flipped learning model** – which may be applied to traditional, hybrid, and online courses – intentionally inverts the traditional use of class time, so that activities that usually take place during class now take place outside of class. Flipped learning exposes students to course content prior to class. Technology can support this by delivering course content via recorded lectures or videos. In this way, class time is reserved for students to engage in higher-order thinking and application of the learned concepts in a whole group, with the guidance of the instructor to facilitate deep and meaningful learning. Though generally less reliant on technology than the other models, the flipped classrooms often include use of such tools as personal response systems or clickers (Saichaie, forthcoming).

A **hybrid course** is one where a portion of face-to-face instruction and learning activities is replaced by web-based online learning activities. Typically, between 25-75% of course activities occur online. For example, students might come to class for two hours per week instead of four – the other two hours are "made up" with online activities, which can be *synchronous* or *asynchronous*. "Synchronous" online activities are when the students and instructor are all engaging with each other and the content in real time and include things like webinars and online chat rooms. "Asynchronous" online activities are when the students and instructor are engaging with each other at different times, typically over a longer period. Online discussion forums are a good example of an asynchronous online activity.

An **online course** is one in which all instruction and learning activities occur online; those activities can be either synchronous (students and instructor engaging with each other at same time) or asynchronous (students and instructor engaging with each other at different times, typically over a longer period), and often is the combination of the two. The courses do not meet in a face-to-face classroom. The instructor is generally directly involved and interacts with students through online presentations, online office hours and chats, and online discussions.

Both hybrid and online models differ significantly from traditional courses along three dimensions:

- Time and flexibility – hybrid and online courses more often combine elements of synchronous and asynchronous learning.
- Instructor and student roles – hybrid and online courses more often see instructors as coaches, mentors, and designers while students are more active and have an increased responsibility for learning.
- Content delivery and student interactions – hybrid and online courses increase opportunities for variation in delivery and ways in which students engage with others.

Why does it matter?

Though still an emergent field of study, there is evidence of the effectiveness of blended and online modalities in terms of student learning and instructor and student satisfaction. Some argue for its disruptive innovativeness (Linder, 2017; Christensen, 2011) or its transformative potential (Garrison & Kanuka, 2004). The research generally suggests that learning outcomes are as good, if not better, in

blended, flipped, hybrid, or online (BFHO) models when compared to traditional courses (Baepler et al., 2014; Bowen et al., 2014; Means et al, 2009). Other studies of hybrid learning highlight its varied effectiveness across different levels and types of courses (Ryan & Reid, 2016; Adams et al., 2015; Marshall & DeCapua, 2013; Owston, et al., 2013).

Research also suggests that instructors are satisfied with the level of flexibility blended learning affords with regard to the use of time and classroom space, increased potential for interaction with students, and opportunities to learn more about new technology tools. Students report satisfaction with blended learning in varied contexts – from U.S. undergraduates to international settings to graduate and professional students – and often report that flipped models feel more inclusive with the increased levels of peer and instructor support (Saichaie, forthcoming).

In sum, though challenges with hybrid and online learning (e.g., rethinking course design, adopting a new approach to teaching, managing dual learning environments, preparing students) exist, the advantages have potential to outweigh them. New teaching roles and pedagogical opportunities, combined with increased student engagement and learning, underlie these innovative models. With a goal of transitioning to hybrid learning, part 2 of this series discusses how to get started; part 3 describes how to design learning activities that create a community of inquiry within a hybrid environment, and part 4 highlights strategies for taking the course to the next level by embedding active learning.

Citation

Center for Educational Effectiveness [CEE]. (2019). Hybrid Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Hybrid Learning Series

PART 2: Getting Started – Organizing the Course

Not only are there key differences between traditional face-to-face and online/hybrid courses, but there is also variation within hybrid models. This part of the series will examine one such model, consider best practices for hybrid/online settings, and highlight campus resources that can support online and hybrid course (re) design.

Many instructors at UC Davis currently use the "Replacement Model," whereby the typical arrangement of a four-unit course consisting of three hours of lecture and one hour of discussion/lab per week is replaced by any of the following three options:

- *Lecture* meets *in class* 1 to 1.5 hours/week;
  Online lecture meets "*online*" in some format 1.5 to 2 hours/week;
  Discussion meets *in class* 1 hour/week.
- *Lecture* meets *in class* 1 to 1.5 hours/week;
  Online lecture meets "*online*" in some format 1.5 to 2 hours/week;
  Discussion meets "*online*" in some format 1 hour/week.
- *Lecture* meets *in class* 3 hours/week;
  Discussion meets "*online*" in some format 1 hour/week.

No matter what model is chosen, all successful courses require intentional and strategic planning. Once an exact model is identified, it is important to examine strategies for redesigning a course, creating learning activities, and assessing learning. In doing so, Table 1 offers considerations for practice in Blended, Flipped, Hybrid, and Online (BFHO) settings (Saichaie, forthcoming).

Table 1: Considerations for practice in BFHO settings

Component	Question	Considerations for Effective Practice
Instructor Readiness	What is your level of experience and motivation with courses in BFHO settings?	In preparation for a manageable redesign and to set appropriate expectations, realistically evaluate your experience, skills, and motivation for change. Depending on the scope of transformation, allow enough time (6-24 months) for completion.
Student Readiness	What is your students' level of experience and motivation with courses in BFHO settings?	Evaluate your students' potential to access and connect to the internet. Also ask them to assess their ability for an online discussion platform.
Percentages of Class Time	What proportion of your class will be face-to-face and what proportion will be online?	If a percentage of course activities are asynchronous and online, you must adjust synchronous in-class sessions accordingly. These percentages may be informed by your course goals.
Learning Goals	What do you want your students to know, do, and value at the end of class?	While developing student learning objectives, use verbs (see Bloom's Revised Taxonomy) to connect to learning goals and increase measurability of the objectives and outcomes.
Assessment of Learning	How will you know if your students are learning?	Map both formative and summative forms of assessment, to course learning goals. Identify how you will provide

		timely feedback, especially in high-enrollment and writing-intensive classes.

Adapted from Saichaie, forthcoming.

As with any course, effective learning principles must also be applied to any BFHO setting. A successful course will be mindful of the learning environment, adult learning principles, and online learning processes (Shea, 2007). With an existing course in mind, apply the principles of Understanding by Design (or backwards-planning) as a framework for course redesign:

- **Learning Outcomes** What should students be able to do by the end of the unit?
- **Assessments/feedback** How will you determine if students are achieving the learning outcomes? How will students get feedback about their learning? Consider the role of both formal and informal assessments.
- **Learning Activities** What learning activities will students participate in to help them meet the learning outcomes? How will they interact with each other, the instructor, and the content? Consider which activities are best suited for face-to-face or online and how they will be integrated.
- **Tool Needs** What tools (including technology and other materials) are needed to create the unit or support the learning activities and/or assessments?

Use the template (Appendix 2) to get started designing one week/unit of your hybrid course.

To begin, student learning outcomes are the big ideas and skills that we want students to take away from the course. In the context of BFHO courses, do you expect different or new student outcomes? Will you measure them face-to-face, online, or both? Next, conceptualize the course based on these outcomes. How will you know that have met your objectives? What learning evidence must you collect? Finally, what student-centered learning experiences and instructional delivery methods will best support the students in this learning?

Support for Redesign

EdTech Commons is a resource site for UC Davis instructors interested in integrating technology into their instruction. Site features include:

- Advice from UC Davis instructors about how they integrated technology for student learning
- Instructional tools and technologies that increase student engagement
- Summary of scholarly research
- Descriptions of adapting learning activities for BFHO delivery

The Center for Educational Effectiveness (CEE) and Academic Technology Services (ATS) can also provide consultation, training, and additional resources to support transitions to BFHO settings.

Citation

Center for Educational Effectiveness [CEE]. (2019). Hybrid Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Hybrid Learning Series
APPENDIX 2: Planning Template

Hybrid Course Design
Unit/Module Planning Template

Use this template to get started designing one week/unit of your hybrid course. Begin with considering your existing course. As you fill out the grid, pay close attention to how the learning activities and assessments align with your student learning outcomes. For fully online classes, consider 'synchronous' and 'asynchronous' activities and assessments.

Course:	**Topic:**	**Week/Dates:**

What is currently working well in your face-to-face teaching?	What challenges exist in your face-to-face teaching?

Learning Outcomes What should students be able to do by the end of the unit?	**Assessments/feedback** How will you determine if students are achieving the learning outcomes? How will students get feedback about their learning? Consider the role of both formal and informal assessments.		**Learning Activities** What learning activities will students participate in to help them meet the learning outcomes? How will they interact with each other, the instructor, and the content? Consider which activities are best suited for face-to-face or online and how they will be integrated.		**Tool Needs** What tools (including technology and other materials) are needed to create the unit or support the learning activities and/or assessments?
	Face-to-face	*Online*	*Face-to-face*	*Online*	
1.					
2.					
3.					

Center for Educational Effectiveness, UC Davis *Last updated 4/2017*

Hybrid Learning Series

PART 3: Designing Learning Activities – Establishing a Community of Inquiry

This part of the series focuses on developing student-centered learning experiences and content presentation. It highlights both *what* you want students to learn (the content) and *how* you want them to learn it (the process). Table 1 offers things to consider in promoting inclusivity and higher-level thinking.

Table 1: Considerations for practice in BFHO settings

Component	Question	Considerations for Effective Practice
Interaction and Inclusivity (also see Inclusive Practice series)	How will you create community and engagement?	To increase participation and create a course climate of learning and inquiry (also see Implicit Bias series) courses should integrate cognitive, social, and teaching presences. Attention to community increases student sense of belonging.
Learning Activities	How will student-centered pedagogies inform your instructional design so students can apply what they are learning?	Create activities that integrate critical thinking, problem-solving, and collaborating both in/out of class. Seamless transition between settings, requires attention to learning goals and course design. Allow students multiple opportunities to demonstrate learning by planning differentiated activities.

Adapted from Saichaie, forthcoming.

Community of Inquiry Framework

When designing learning activities, establish a community of inquiry that sustains the process of online learning as an integrated system. First, create a *teaching presence* by considering the student – instructor interactions. For example, offering an Instructor Welcome and Orientation video that describes for students how to navigate the course can establish the instructor as facilitator. Next, build a *cognitive presence* through student – content and resource connections. From student learning outcomes, to graphic organizers or thinking maps, to brainstorming prior knowledge, clear guidance on content and navigation supports student-centered learning. Finally, build a *social presence* by focusing on student – student interactions. You can foster these through online discussions, online collaborative activities, or chatrooms (Garrison & Arbaugh, 2007; Garrison et al, 2000). Table 2 organizes many more examples by each type of presence.

Table 2: Components of a Community of Inquiry

Teaching Presence (student-instructor interaction) *Facilitation of Learning*	Cognitive Presence (student-content interaction) *Exploration of Ideas*	Social Presence (student-student interactions) *Discourse and Climate as Learning Platforms*
• Course instructional design and navigation • Curriculum • Syllabus • Course schedule • Netiquette rules • Agendas and advance organizers • Concept maps	• Relevant, strategic content • Tutorials (with text, images, audio, and/or video) with embedded interactivity • Pause for reflection • Self-assessments / clickers / polls • Quizzes (with feedback)	• Creating community expectations • Inclusive pedagogies • Equity pedagogies • Collaborative tools and tasks • Think / pair / share • Group projects • Peer instruction

• Previews and reviews, minute papers, "muddiest point" papers • Providing instructor/TA/peer feedback on assignments, learning journals, or other reflective activities • Participating in discussion forums or chats • Sending announcements to summarize the previous week or describe the next week • Providing online office hours for teams and individuals • Mentoring individual learners • Working with small groups of students assigned to help teach portions of course (peer teaching)	• "You are the professor" question creation • Modeling of procedures and methods • Examples and visuals • Web quests • Reading / video discussion or reflection activity • Jigsaw discussions • Simulations • Group-based curation of content • Automated feedback	• Role playing • Synchronous / asynchronous discussion or debates • Collaborative brainstorming • Peer review of selected work • Study buddy • Student lounge • Open-topic discussion • Social media forum • Informal blogs • Individual, pair, and group work • Q & A, open discussion forum • Games • Simulations

Adapted from the Indiana University, Teaching Online

Citation

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Hybrid Learning Series

PART 4: Next Step – Embedding Active Learning Activities

After getting started with the basics, this part of the series explores the next step – integrating active learning into the online environment. Active learning engages students in "doing" (also see Active Learning series). Students talk about their learning, write about it, connect it to prior experiences, and apply it to their lives. They transform their learning into a part of themselves.

Active learning is *visible*; we can *see* students learn as they problem solve, interact, discuss, reflect, teach, and apply. Online learning activities range from those that are easier to integrate (i.e., minute papers, the muddiest point, pause for reflection, group discussion, self-assessment, clickers), to those moderately difficult (i.e., concept maps, think-pair-share, peer review, case studies), to those more complex (i.e., role-playing, jigsaw activities, simulations, experiential learning).

As with any innovative pedagogy, there are naturally concerns to implementation. Potential solutions to the common concerns of limited time, student reactions, and large classes are suggested in Tables 1a-1c, respectively.

Table 1a: Addressing Limited Time

Concern	Solutions Applied to a Hybrid Environment
There is no time to add more to an already packed lecture.	• Flip the class design by swapping direct instruction and homework. Remove some direct instruction from class time and assign it for homework (e.g., using videos or readings). Adapt homework for in-class or synchronous, interactive activities.
Implementing interactive activities means adding more assignments that need grading.	• Use online peer assessment. Create low-stakes assignments that students need to complete in order to succeed on other graded projects or assignments. • Use automated feedback. Explore automated grading options of your LMS, such as Gradescope.
Too many emails. Students have too many questions since active learning is unfamiliar.	• Set clear expectations for students to reach out to each other for help via the discussion forum or through an online Q & A page. • Answer students' emailed questions on a message board. If one student has a question about a part of the assignment, it's likely that others do too. Be sure to remove all identifying information. • Collect student questions and create a FAQ page. This FAQ can be an online document or attached to a syllabus. • Use a rubric to explain the assignment prompt. Rubrics answer many common student questions and clearly communicate your expectations for assignments. Post the rubric on Canvas.

Adapted from the University of Buffalo, Center for Educational Innovation

Table 1b: Student Reactions

Concern	Solutions Applied to a Hybrid Environment
Some students may resist active learning.	• Clearly explain why students are being asked to engage in these talks and how they benefit. This can also be communicated prior to class via Announcements. • Facilitate student work by checking in with students (e.g., through Zoom break-out rooms). • Plan activities that students perceive as having value. Be explicit about learning outcomes and why they are important. Connect them to the course objectives that may be posted on your Canvas home page or syllabus.

Students will be distracted and off-task.	• Adopt "facilitation" strategies to check in with students over and "be" in the room. Instructors should not be hesitant to refocus students on their work.
Students will come to class unprepared.	• Make your expectations clear. Explain to students what it means to be "prepared" for class and what they should be able to do when they come to class. Whether the material is text or video, students need to know what to look for, how to identify the important parts, and to understand why it matters. • Hold students accountable. A "ticket to enter" strategy asks students to complete a task as part of their pre-class work. Other strategies include: a low-stakes quiz, writing three questions based off the reading, or posting to the class discussion forum. The instructor can use this information to address content students may be struggling with. • Have a conversation. Identify who is not prepared and see if this is a trend. Talk to the student or arrange a future meeting or Zoom conference. Once students realize they are on the instructor's radar, they often resolve their unpreparedness. • Reflect on the way you have organized your course on Canvas. Is it easily navigable? Can students readily find "what is due" that day or that week? • Regular Announcements can be a proactive way to focus student attention to what is immediately required for preparedness. • Rethink participation grades. Make the completion of online or pre-class work a significant part of participation and their final grade. This allows instructors more flexibility in determining what counts as "participation" and encourages students to come prepared.

Adapted from the University of Buffalo, Center for Educational Innovation

Table 1c: Class size

Concern	Solutions Applied to a Hybrid Environment
Sorting large numbers of students into groups.	• If students need to meet outside of class, utilize a tool such as When2Meet to create groups based on availability. Or use a simple Google Forms survey to collect metrics that will help determine how students are grouped.
Supervising student work can be overwhelming.	• Have students work in a digital environment (e.g., Google Drive) and then send a link to their group folder. The faculty or TA can decide how much oversight they would like to provide. This also creates a time-and-dated stamped paper trail of the work each student contributes.
No time to grade additional work.	• Check Canvas options for automatic grading for quizzes. Peer grading can also be useful, but students will need direction on how to properly critique and give feedback.
Many students need help and there's only one faculty member or TA in class.	• Encourage students to ask their peers before asking the instructors. Make use of message boards or other tools (e.g., social media) where students can post questions, and everyone can respond.

Adapted from the University of Buffalo, Center for Educational Innovation

Citation

Center for Educational Effectiveness [CEE]. (2019). Hybrid Learnig Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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PLANNING INSTRUCTION & LEARNING ACTIVITIES

Activating Your Lecture Series

PART 1: Incorporating Active Learning into a Large Lecture Course

Active learning practices can boost student engagement with course material, enhancing learning and increasing performance on assessments in all fields. Integrating active learning practices into your high enrollment lecture sections also helps to personalize learning and build a learning community among students and instructors. Some examples of recent research findings on the impact of active learning include:

- Freeman et al. (2014) conducted a meta-analysis involving high enrollment lectures and found that active learning increased student performance on exams by an average of 6%, and decreased failure rates for these courses from 34% to 22%.
- Reimer et al. (2016) found active learning to be particularly beneficial to first-generation college students in STEM courses, boosting both retention and passing rates.
- Gray et al. (2010) found students who used 'hands-on' active learning outperformed the control group, who passively received a lecture, on a concept test by a mean of 68%.

How can I start pairing active learning activities with my lecture?
Break up lectures with active learning activities like pair- or group-work, problem-solving, or low-stakes assessments. Lectures are effective for conveying information, but not for learning outcomes that require higher-order thinking, or inspiring new interests, values, or behavioral skills in students (Bligh, 2000). Implementing a format like Smith et al.'s (2005) bookend-strategy (Figure 1) can help organize your time in the classroom to cover content and accomplish learning goals:

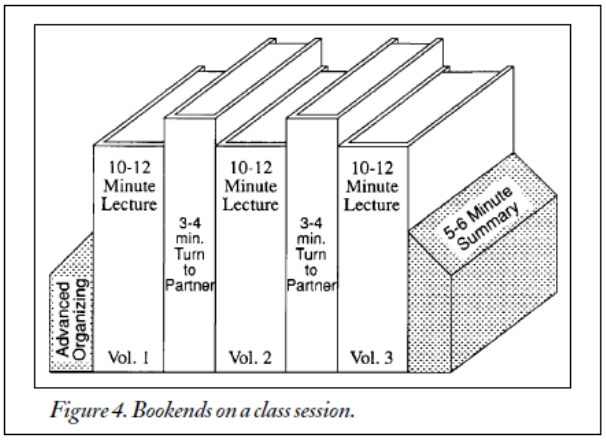

Figure 1: Bookend Model (Smith et al., 2005)

Using this bookend-strategy to organize your lecture into 10-12 minute portions followed by 3-4 minute active learning activities should provide a balance between supplying students with new concepts and allowing them to work with those concepts in groups or on their own. Below are suggestions for several active learning activities to incorporate into your lectures:

Activities	Descriptions	Example Activities
Learning Cell	Have students complete a reading or problem set before class, and write questions that deal with the major points of the assignment. Then in class, students pair up. Partner 1 asks their questions of Partner 2, who answers	After reading a chapter that focuses on ethics in human subjects research, students compose questions that deal with points they'd like clarified (ie "What does the Internal Review Board process entail?"), or central concerns of the chapter, (ie "In what situations

	them. If necessary, Partner 1 corrects their answers, or adds to them to make them more complete. Then repeat for the other pair member.	do the benefits to research subjects outweigh the risks?"). Students pose these questions to one another in class and in the ensuing conversation, help clarify misconceptions and engage key concepts from the reading.
Minute Paper	Have students write down their thoughts on a topic or question for one or two minutes and ask for volunteers to share their thoughts.	"We've been talking about random sampling in psychological data collection. Come up with at least two ways to collect a random sample and tell me how you know that these techniques will truly be random."
Small Group Projects	Assign a problem set or critical thinking task to groups of 3-5 students. Groups may turn in their solutions in class, and/or share their responses verbally.	"In Star Trek: Into Darkness, the starship Enterprise is shown hiding underneath the surface of an ocean. NASA engineers have said that a starship designed to survive deep space wouldn't survive the sea. Why do you think this is?"

How do I incorporate active learning and still cover all the content that student need?
Lecture has its place, but content coverage alone does not ensure student learning. Streamline content in order to have enough time for in-class activities. Allowing students to engage fully with course material in small group activities can increase student satisfaction with the learning experience and student performance on comprehension measures (Yazedjian & Kolkhorst, 2007). If instructors ensure class activities are complementary to lecture topics and aligned with course learning goals, a similar amount of content can be covered as in a standard lecture-only class (Oliver Hoyo, 2011). Below are some suggestions for streamlining course content. Additionally, see our resource series titled "Content Coverage" for more strategies and suggestions.

Strategies	Teaching Suggestions
Carefully define class learning outcomes and unit objectives.	This allows you to really focus in on the important content and to make sure your activities are aligned with your learning outcomes. (Fink, 2013, Wiggins & McTighe, 2005).
Decide on lecture sections to be skipped if there isn't enough time left in class.	Thoughtfully preparing your lectures and marking the sections that can be skipped without compromising student learning allows you more flexibility in the classroom.
Consider shortening your lecture.	Shortening your lecture while using an active learning activities can help to reinforce or further explore the content you cover. For example, you could have students research and present on the content themselves in pairs or groups.
Practice will make the activity run efficiently.	The first time you plan to use active learning, try it with your TAs, or let them help you devise it. If that is not possible, think about how long it would take you and triple the time (Svinicki & McKeachie, 2013). Then when you run the activity, monitor how long students took on the assignment so that you can better manage your time in the next iteration.

How can I involve my TAs?
One study of six high enrollment biology lectures found that both students and TAs were more satisfied with coursework when TAs played an active role in learning activities, freeing up time for the instructor to interact directly with students (French & Russell, 2001). Below are some examples of how to involve TAs in coursework:

- Ask TAs to field questions and circulate amongst groups during active learning activities.
- At the beginning of class, ask TAs to provide a 5-minute review of the previous lecture.

- Ask TAs to assist with logistical concerns like time-management, distributing and collecting materials, managing technology, and listing key terms on the board.
- Divide the lecture hall up into smaller sections, and ask TAs to facilitate discussions or activities in each section.
- Hold weekly meetings for instructors and TAs to make sure everyone is prepared, and to allow TAs to take ownership of a specific upcoming activity. This allows for motivation and pride in doing a good job, benefitting both the TA and the students.

Additional Resources

- On integrating effective classroom practices, visit the CEE teaching support website
- For academic technology support, visit either Academic Technology Services or EdTech Commons, a site designed to help support teaching with technology.
- For the TA handbook and instructional materials, visit the CEE's TA orientation webpage.

Citation

Center for Educational Effectiveness [CEE]. (2018). Activating Your Lecture Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Activating Your Lecture Series

PART 2: Using Technology Make Lectures more Interactive

There are a variety of different classroom technologies that can be used to help make high enrollment classes more interactive. These technologies include classroom response systems (i.e., clickers) and webcasting/podcasting lectures, among other technologies and programs. Education technologies like these provide students with opportunities to more actively engage in course material (MacArthur & Jones, 2008), and can help to improve students academic performance (Mayer et al., 2009; Traphagan et al., 2010).

How can "clickers" help?
Integrating classroom response systems (e.g., clickers) into high enrollment lectures has been shown to increase student engagement and collaboration (MacArthur & Jones, 2008). In-class, low-stakes assessments (like the ones that clickers make possible) can help instructors quickly identify common misconceptions and measure specific learning outcomes, making the teaching environment more effective (Sevian & Robinson, 2011). A large-scale study of clickers found that students who responded to questions with clickers had a higher gain in understanding than students who responded to questions on paper (Mayer et al., 2009). For help integrating clickers into your classroom, see Academic Technology Services. Below are a few suggestions to help you get started:

Strategy	Example Question #1	Example Question #2
Make sure your questions focus on higher-order understanding of concepts, as well as rote memorization or recall. While clickers lend themselves well to yes/no questions, you can build up to questions requiring problem-solving, the demonstration and/or application of new skills, or the integration of ideas across topics.	*Think about the different mental biases we've gone over today. Nikki decides to buy a small car because it is good for the environment. When she goes to look at small cars, she is surprised that they came in luxury versions because she expected them to be very basic and uncomfortable. What bias has Nikki been using? What does this suggest about Nikki and her bias(es)?*	*Today we've been discussing climate change. Think about climate change in a broader context. Given what you know about the water cycle from last week's discussion, what part of the water cycle is under the biggest threat from climate change, and why?*

If technology doesn't appeal to you or your classroom faces some possible connectivity issues, try using analog clickers made from differently colored index cards or sheets of paper with different colors in each quadrant. Students can hold up the color which represents their response option, allowing you to easily see trends in student responses.

Does webcasting/podcasting really work?
There are numerous benefits to students when instructors webcast or podcast their classes. Podcasting has been shown to lead to less absenteeism than posting powerpoint slides online, and students who watched webcasts multiple times saw an increase in academic performance (Traphagan et al., 2010). Podcasting can support active learning because it enables students to assess their own understanding of course content (for example if they listen to a podcast after studying a chapter on the same material); it encourages efficient and independent time management; and it enhances students' motivation (Fernandez et al., 2009). Podcasting can also be particularly useful for English-language learners and international students, because it allows them to repeat sections of the lecture that may include difficult academic language or jargon. Here are a few factors to consider before deciding to incorporate webcasting or podcasting with your lecture:

- Some UCD classrooms are already configured for both video and audio recording, allowing you to webcast full lectures and post them online for students to view. Check the listing on the Registrar's Office website for details on existing classroom setups.
- UCD has a limited amount of portable podcasting equipment available for instructor use, allowing you to record audio-only versions of lecture and post them online for students to download. Contact Academic Technology Services to find out if this technology is available for your use.
- If official equipment is not available, consider asking a student to record class on their personal device and send it to you for posting online, or use your own personal device to record the lecture.

Where can I find more resources?

- On integrating effective classroom practices, visit the CEE teaching support website
- For academic technology support, visit either Academic Technology Services or EdTech Commons, a site designed to help support teaching with technology.
- For the TA handbook and instructional materials, visit the CEE's TA orientation webpage.

Citation

Center for Educational Effectiveness [CEE]. (2018). Activating Your Lecture Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Strategies for Covering Content Series

PART 1: Covering Content More Effectively During Lecture

Helping students learn and internalize content knowledge is a complex task that requires instructors to be both proactive and creative. Ambrose et al. (2010) define learning as "a *process* that leads to *change*, which occurs as a result of *experience* [emphasis original] and increases the potential for improved performance and future learning (adapted from Mayer, 2002)" (p. 3). Furthermore, the authors emphasize that learning is something that students must actively do themselves, not something that they passively receive from an instructor (Ambrose et al., 2010). Despite this, traditional lecture is still likely the most widely used form of content delivery in colleges and universities (Nilson, 2010). Although lecture certainly has its place in today's classrooms, there are other strategies can be used to engage students while still promoting learning. Varying your instructional strategy also has benefits for low-income and first-generation students, who may feel isolated when more traditional pedagogies are used exclusively (Engle & Tinto, 2008).

Getting more creative with lecture through active learning activities

Lecture can be an efficient way to communicate information to students, especially when paired with active learning activities (Gregory, 2013; Smith & Cardaciotto, 2011). These activities can either be individual or collaborative. Collaborative learning has been found to be quite effective in a variety of class types and subjects (Barkley, Major, & Cross, 2014; Loes, An, Saichaie, & Pascarella, 2017). Here are a few strategies for pairing lecture with active and collaborative learning activities:

Strategies	Activities & Descriptions
Break up your lecture with discussion activities	Think/write-pair-share: For this activity, the instructor asks the class a question, and then gives students a few minutes to think about or write down a response. Students then pair up and share their ideas
	Send-a-problem: For this activity, students break up into groups. Each group is given a problem to solve together. After coming up with a solution, the group then passes the problem and their solution to another group. After several groups have attempted to solve the problem, the groups must work together to analyze and synthesize the responses to the problem and report the solution to the class.
	Buzz groups: In this activity, students form teams of 4-6 and respond informally to a series of course-related questions. One useful variation on this activity is to assign students roles in the group (e.g., recorder, time-keeper, presenter, etc.).
	Active listening: Ambrose et al. (2010) suggest building active listening competency by asking students to "paraphrase what someone has said, followed up by a series of questions as to whether their perception was inaccurate or incomplete" (p. 186). The authors also suggest modeling this technique by paraphrasing your students responses in classroom discussions.
Assess students' understanding	Clicker quizzes: Short, in-class quizzes using clickers can be used to assess in the moment how much students' are understanding the lecture and whether you may need to go over a topic. For more on clickers at UC Davis, visit EdTech Commons.
	Minute papers: These short writing activities, where students spend a few minutes writing short responses to questions meant to gauge their understanding of a class concept, can also provide you with an opportunity to assess students' understanding of content in a more holistic way than quizzes.

Implement reciprocal teaching activities	Note-Taking Pairs: As the name suggests, this activity works by having students take joint notes. This allows students to capture more material in their notes, likely improving both partners individual notes.
	Jigsaw: "Students work in small groups to develop knowledge about a given topic and to formulate effective ways of teaching it to others. These expert groups then break up, and students go to new Jigsaw groups" (Barkley, Major, & Cross, 2014, p. 212).
	Group Investigation: In groups, students are assigned a sub-topic in the class that they are in charge of researching and then creating a final product to teach the class about their sub-topic.

Additional resources:
For more strategies and suggestions on pairing active learning activities with lecture, see our resource series titled "Activating Your Lecture."

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Center for Educational Effectiveness [CEE]. (2018). Strategies for Covering Content Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Strategies for Covering Content Series

PART 2: Covering content through non-lecture activities

In her article, Oliver-Hoyo points out that "presenting information does not necessarily translate into students' understanding" (p. 35). Instead, she advocates for reducing the quantity of content covered, so that students can engage in key course concepts at a deeper level. This contention has been corroborated by Luckie et al. (2012), who found that students in biology laboratory courses with less traditional content coverage but more inquiry-based learning tended to score higher on content exams than students in classes with less inquiry.

Inquiry-based learning

Nilson (2010) defines inquiry-based learning as "giving students a challenge, such as a question, a hypothesis, or simply data to interpret, and they learn whatever they must to meet that challenge, which may or may not go beyond the course material" (p. 176). Research suggests that inquiry-based learning promotes higher-level thinking in students, including critical thinking and problem-solving skills (Nilson, 2010), and can improve students acquisition of course content (Luckie et al., 2012). Additionally, Engle & Tinto (2008) suggest that incorporating more active, cooperative, and problem-based learning activities that "require students to become more involved in the learning process," (p. 25) can be one way to promote success for diverse learners, and for low-income, first-generation college students. Below are a few suggestions for how to incorporate guided extended-learning activities into the classroom. These activities should be scaffolded, otherwise they might become frustrating, insurmountable learning tasks for some students.

Strategies	Activities & Descriptions
Consider common modes or objects of inquiry from the field	Field-Based Investigations: You could design activities (or a project) where students must investigate a phenomenon of interest, a controversy, or a problem currently impacting the field. Then, break up the object of inquiry into several mini-assignments that are scaffolded in complexity (from easier to more complex) over the quarter, so that the tasks are more manageable for students.
Implement "authentic" writing assignments	Authentic Writing Projects: Anderson, Hoffman, & Little (2014) define "authentic" writing assignments as asking students to practice the types writing and thinking professionals in their discipline actually engage in. Authentic writing projects can give students a chance to see what writing and inquiry looks like in their own disciplines while providing them with an opportunity to write to a realistic audience.
Implement problem-based learning	Case study: In teams, students are given a case study describing a real world and/or field-related problem. Each team must then develop a solution to the problem, using course concepts, outside research, etc. Group Investigation: In groups, students plan, conduct, and report on an in-depth research project that is topically related to the course, though not covered by the instructor. This type of project allows students to dig into a particular topic, and gain more specialized knowledge in that particular area. For step-by-step instructions on how to design a problem-based activity, see this article from Faculty Focus.

Writing-to-learn activities

Writing-to-learn activities involve using writing to help students understand course concepts and content. Herrington (1981) argues that these activities can be particularly helpful in exposing students to disciplinary ways of writing/thinking, and push students to be active participants in their own learning. Similarly,

research suggests that writing-to-learn activities can promote students' learning of content, performance on content exams, and engagement in the course (Bean, 2011; Drabick et al., 2007; Reynolds et al., 2011). Writing-to-learn activities range in size and intensity; from longer research-based projects to short in-class discovery writing.

Shorter Assignments	Longer Assignments
Free Writes: Short, ungraded, in-class exploratory writing activities meant to get students engaged in a course topic.	Inquiry/Problem-Based: Students are asked to research and investigate a current issue or problem facing the field.
Reading or Concept Responses: Student must write a response on an online discussion board responding to specific readings or course concepts. Instructors should provide guiding questions for these responses.	Compare/Contrast Analysis: Students are given a series of opposing readings, and must compare/contrast how and why the scholars' perspectives differ.
Lecture Summaries: Students are asked to write a short summary of a class lecture. This activity can be done in or out of class.	Position Papers: Students are asked to research and support a specific position on a controversy impacting the field.

Additional resources:
For more strategies and suggestions on designing and implementing writing-to-learn activities, see our resource series titled "Designing Effective Writing Assignments."

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Center for Educational Effectiveness [CEE]. (2018). Strategies for Covering Content Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Strategies for Covering Content Series
PART 3: Flipped Classrooms

A "flipped" classroom model is essentially an inversion of the traditional structure for both inside and outside class time. In a flipped classroom, students are exposed to course concepts and content prior to class (through videos, reading, podcasts, etc.), while class time is devoted to practicing and applying these course concepts through a variety of active learning activities. Research suggests that flipped models are still quite effective at covering content (e.g., Baepler, Walker, & Driessen, 2014; DesLauries, Schelew, & Wieman, 2011; Haak et al., 2011; Marshall & DeCapua, 2013). For example, Baepler, Walker, & Driessen (2014) found that students taking a high enrollment chemistry course in a flipped format performed at least a well as those in a more traditional, lecture-oriented course; additionally, "student perceptions of their learning experience tended to improve significantly with the move to the flipped, hybrid format" (p. 234).

Considerations for "flipping" the classroom
"Flipping" the classroom requires a considerable amount of thought, planning, and (re)design (EDUCAUSE, 2012). However, while it may take significant time and energy, the research (as noted above) demonstrates that if done thoughtfully, "flipping" your classroom can be well worth the effort for you and your students. Before embarking on the "flipped" endeavor, reflect on the following:

Considerations	Explanations
Time intensivity	"Flipping" the classroom involves carefully examining the learning objectives at multiple levels (department, course, unit, lesson) and the activities and assessments used to determine what and how students are learning. Significant time must be devoted before the term towards developing materials like recorded lectures and online modules. Because of this, EDUCAUSE notes that the "flipped" model can be easy to get wrong. In order to avoid a failed experiment and a host of confused students, make sure you have plenty of time to devote towards planning and developing materials before you start. For help with aligning objectives, see this resource from CEE's Program Assessment team.
Teaching style	Adopting a "flipped" model requires an adaptation of teaching style. Instructors considering this approach should reflect on their style and how that will change in both the "flipped" material and during class time. The instructor's role will change significantly with the "flipped" model and promoting instructor "presence" is a key consideration. For more on "presence" in flipped classes, see this resource from EdTech Commons.
Class time	With the content delivery handled outside of class, instructors should think about how they will spend class time and generate student buy-in. Many active learning strategies exist, such as problem-based learning, cooperative learning, and group work. Many of these strategies align with popular learning activities, including: case studies, debates, and simulations. For strategies on implementing active learning activities in the classroom, see this resource from EdTech Commons, Parts 1 and 2 of this resource series, as well as our series titled "Activating your Lecture."
Assessment	Proponents of the "flipped" model suggest that students be assessed on the video/reading segments of the pre-class materials. In essence, what will the students do while they watch the video, or right after viewing a lecture? Short quizzes are an example of ways for students and instructors to determine how well the material was understood. These types of assessments may also help instructors shape the in-class time (i.e., mini lecture on challenging topics, review concepts). Other, less formal options exist as well, such as creating a backchannel for discussion via social media (e.g., Twitter) or through the course management system (e.g., Canvas).

	Regardless of approach, this type of assessment will help determine if students viewed the material prior to class. For more quick in- and out-of-class assessment activities, see PARTS 1 and 2 of this series, as well as our series titled "Encouraging Student Motivation."

What are some first steps I can take to prepare to "flip" my classroom?
Here are a few additional considerations and suggestions on how to get started with flipping your classroom:

Strategies	Teaching Suggestions
Begin with the end in mind	Whether redesigning an entire course or just one module, instructors should determine student learning outcomes and the activities to support and assess them, and how they will foster student learning. Think of both content-centered (e.g., students will be able to summarize the main elements of the carbon cycle) and content-neutral outcomes (e.g., students will learn to work together collaboratively).
Set expectations	Be intentional and honest. Instructor enthusiasm sets a very strong tone for the "flipped" model. Instructors should also tell students about the reasons why the model is being implemented and how it will help improve student learning.
Start smart	While the "flipped" model takes some considerable planning, one need not "reinvent the wheel," so to speak. Think about what you have in existence, what you can enhance or what you can employ. • Existing content: Much of the existing instructional materials (e.g., documents, Powerpoints, PDFs) can be repurposed for the "flipped" model. • Enhance: Adding enhancements to existing materials (e.g., voiceover slides, annotating video and documents) can be done through free or campus supported technology, such as screen capture software (e.g., Camtasia, Jing) and annotation software (e.g., Adobe Acrobat, Preview). • Employ: A number of high-quality and/or freely available resources exist to complement instructional material (e.g., Khan Academy, MERLOT, OER Commons, TED-Ed).
Start small	Begin with one lesson or one unit. As previously mentioned, "flipping" takes time. When determining how to record pre-class material, consider "chunking" content into pieces.
Observe	Many instructors have used the "flipped" approach. Ask them for an opportunity to observe a planning session, video recording, and class period to get a general sense of the preparation, technology tools, classroom activities, environment, and interactions.

Additional Resources
For more suggestions on how to approach designing and implementing a flipped model in your own classroom see:

- UC Davis professor, Dr. Luca Comai's blog on "Flipping Genetics 101"
- Blended Learning Toolkit
- Flipped Classroom Infographic
- The Flipped Learning Network
- Ed Tech Commons

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Designing Effective Writing Assignments Series

PART 1: Strategies for Designing Effective Writing Assignments

Writing assignments can be important meaning-making activities in that they often help students engage with course content in more holistic ways while offering them an opportunity to make that content their own. However, designing effective writing assignments that can achieve these goals takes effort. No matter the writing situation, Bean (2011) argues that successful writing assignments "evoke a high level of critical thinking, help students wrestle productively with a course's big questions, and teach disciplinary ways of seeing, knowing, and doing" (pp. 1-2). On the other hand, if a writing assignment is poorly designed, it can be difficult for the instructor to teach it, and more importantly, difficult for the students to write it (Wilhoit, 2008). Part of what makes designing a writing assignment challenging is that what counts as "good writing" in college can often differ depending on the rhetorical situation, the discipline the writing is situated within, a teacher's purpose in assigning the writing project, and the goals of the course itself.

Common concerns about assigning writing
Bean (2011) describes several concerns that teachers across the disciplines have with incorporating writing assignments into their courses:

Concerns	Responses
Writing activities are incompatible with the subject of my courses.	On the contrary, short, informal writing activities can help students better understand a course concept, while other writing activities can expose students to common disciplinary genres and conventions.
Assigning writing activities will take time away from covering content.	Bean argues that writing activities can actually help students process more content by encouraging students to actually use their developing content knowledge to address disciplinary problems.
I don't have enough time to grade all of those papers.	There are a variety of strategies teachers can use to mitigate the workload presented by writing assignments. These strategies are discussed in more detail further below.
I don't have enough knowledge of writing to help students be successful.	Teachers can be most helpful to students by acting as honest readers, pointing out areas that are confusing or in need of more support. This type of feedback does not require any special knowledge of writing.

Best practices for designing effective writing assignments
Writing assignments should be: 1) specific and purposeful; 2) encourage students to think critically about course material; and 3) tied to the learning objectives of the course (Bean, 2011; Glenn & Goldthwaite, 2014; Herrington, 1981; Wilhoit, 2008). Having a clear conceptualization what you are asking students to do, as well as how and why you would like them to do it, is key to designing an effective writing assignment. Mary-Ann Winkelmes (2014) notes that effective assignments are transparent and suggests that instructors discuss the "learning goals and design rationale" of an assignment before students begin writing.

Additionally, she offers the following suggestions for designing transparent assignments:

- Include a list of the skills students will practice on each assignment sheet. This provides students with the **purpose** of the assignment, which is a key aspect of transparency.
- Make the "learning benefits" of each assignment clear to students from the beginning, including "skills practiced, content knowledge gained, the tasks to be completed, the criteria for success."
- Clearly articulate the steps students should take to thoughtfully complete the assignment

- Provide a rubric or some other indication of criteria for a success on each assignment before students begin writing.
- Provide students with examples of prior students' successful work, and discuss or otherwise indicate how the example meets assignment criteria.

In the chart below, Glenn & Goldthwaite (2014) provide a distinction between what a good assignment is and is not:

A good assignment is...	A good assignment is not...
One that has a clear, specific purpose, and only asks students to deal with 1-2 specific questions to which a thesis can be the answer.	One that can be responded to with a simple true/false, yes/no, dichotomy.
One that asks for a response about a specific, immediate situation instead of an abstract or theoretical one.	One that leads to short and/or unfocused responses, or conversely one that asks too many questions in an effort to elicit a specific response.
One that allows students to tap into their already existing experience and/or knowledge.	One that assumes too much student knowledge on the topic or within the discipline.

In addition to thinking purposefully about the assignment yourself, you must also be able to clearly communicate the tasks and expectations of the project to your students. One of the most important aspects of an effective writing assignment is a clear, concise assignment sheet. Wilhoit (2008) offers the following essential pieces of information that should be covered on every writing project assignment sheet:

Elements	Explanations
Task and type of assignment	Explain the specific writing task and the type of writing project you would like students to write. Try to be as unambiguous as possible in describing the task students are to carry out in a writing assignment. What exactly are you asking them to do, and how are you asking them to do it? See below for examples of types of writing assignments.
Rhetorical situation	Who is the audience for this assignment? What role does the writer have in this project? What is the topic students are meant to cover, and what is their purpose in writing this project?
Grading criteria	Providing a clear rubric or grading criteria can help your students to better align their responses with your expectations. If you intend to have students write collaboratively, make sure you also provide guidelines for group work on the prompt. Stevens & Levi (2005) corroborate the importance of having a transparent rubric, noting that this is especially helpful for first generation students, minority students, and non-native speakers of English.
Due date and desired length	Some students are still learning how to manage their time well, and will benefit from having clear deadlines for all parts of an assignment. Regarding length, some teachers feel that if they specify how long a response should be, students will only write to that length. On the other hand, not specifying a page range or specific length can lead to a wide range of very short or very long responses.
Formatting and documentation guidelines	Make sure you specify any formatting or organizational requirements you have on the prompt. If you would like your students to use a particular citation style like APA, MLA, or Chicago, make sure you specify that on the prompt.

Relation to prior course assignments	Explaining this can help you students understand how this assignment builds on prior work they have completed, and how it will help them achieve the learning goals of the course.

When assigning a writing project, it can be helpful to go through the assignment with your students, giving them plenty of time to ask questions. Winkelmes et al. (2016) found that this transparency can be especially important for first-generation students, and in their study, lead to increased retention and academic confidence. During this conversation, you might help your students get started by providing them with suggestions or options for how they might approach the writing assignment, as well as warnings of common mistakes or misinterpretations students have made with the assignment in the past.

Types of writing assignments
There are a variety of different types of writing assignments to choose from when integrating writing into a course, ranging in length and formality depending on the purpose of the assignment. Bean (2011) and others offer a few examples of effective writing assignments that can be modified to fit a variety of disciplinary contexts. Below are a few examples of common writing assignments:

Example Activities	Activity Descriptions
Summary papers	These assignments ask students to summarize a key concept from the course, or a reading or set of readings.
Formal research reports	These projects ask students to research a topic related to the course, and report their findings in a specific format (chosen by the instructor).
Position or argument papers	These projects ask students to research a topic from a variety of viewpoints, and then use that research to support their own perspective.
Compare/contrast papers	Students are asked to compare/contrast theoretical positions from key scholars, reading, methods, or procedures for completing a task, etc.
Reading responses	Students are asked to respond to specific questions about course readings. These can take place in reading journals that you occasionally collect, or reading responses on a discussion forum (on Canvas or elsewhere).
Position response papers	Students are provided with a position that they must then defend or refute using course concepts and outside research.
Disciplinary problem papers	These projects ask students to make an argument for the best solution to a disciplinary problem.
Data analysis papers	Students are provided with raw data (or asked to collect raw data themselves) that they must then analyze using a particular methodology from the course.

Glenn & Goldthwaite (2014) note that it is important to carefully consider your purpose in assigning a writing project when choosing what type of writing you will be asking your students to engage in. The authors also note the importance of defining and explaining action terms like “analyze,” “define,” “compare,” “argue,” etc., as students may not have clear understandings of what those terms are asking them to do.

Citation
Center for Educational Effectiveness [CEE]. (2018). Designing Effective Writing Assignments Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Designing Effective Writing Assignments Series

PART 2: Aligning Writing Assignments with Learning Outcomes

Consciously aligning the goals and objectives of your writing assignments with the larger learning outcomes of your class can be an effective way to add meaning and importance to the writing you are asking your students to engage in. Herrington (1981) argues that students are more likely to learn from writing assignments that are linked to course objectives, especially when those objectives are ones that "emphasize more than just recall of facts" (p. 120). Research has shown that when instructors think critically about designing writing assignments that will help students achieve course goals, students tend to find these assignments help to improve their understanding of course material (Bean, 2011; Herrington, 1981).

Strategies	Explanations	Teaching Suggestions
Outline the main units of your course	Outlining your main units will give you a sense of what topics your project might cover, as well as which units might be best suited for a writing assignment.	Make a list of the main units of your course, including the content you and thinking skills (e.g., habits of mind, use of evidence, etc.) you intend to cover, and your main objectives for student learning for each unit.
Be transparent with students about learning outcomes	Winkelmes et al. (2016) found that providing greater transparency on assignments significantly improved academic outcomes for first-generation, low-income, transfer, and underrepresented students.	Be transparent about which learning outcomes the assignment is designed around on your assignment sheets, as well as in your discussions with your class and with individual students.
Sequence your writing assignments	Sequenced assignments that become increasingly complex throughout the term can help scaffold the development of key skills and concepts in your course.	Consider assigning a sequence of writing projects that build on each other.
Align your grading criteria with the learning outcomes	Aligning your grading criteria and learning outcomes will ensure that your students are thinking critically about the goals of the course as they write, and not just grammar and correctness.	Consider designing rubrics (or modifying existing ones) that actively align your grading criteria around the major learning outcomes of your course, and be sure to provide your students with these rubrics before they begin writing.
Create disciplinarily "authentic" assignments	Both Bean (2011) and Herrington (1981) argue that writing projects can provide students with valuable opportunities to learn "the particular patterns of inquiry of a discipline" (Herrington, 1981, p. 120). For example, "authentic" writing projects ask students to practice the types writing and thinking professionals in their discipline actually engage in (Anderson, Hoffman, & Little, 2014).	Authentic writing projects can give students a chance to see what writing and inquiry looks like in their own disciplines while providing them with an opportunity to write to a realistic audience, and not just their instructor Consider how knowledge is created and disseminated in your field, and design writing projects that will mimic that process in the controlled environment of the classroom.

Citation

Center for Educational Effectiveness [CEE]. (2018). Designing Effective Writing Assignments Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Winkelmes, M. A., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Weavil, K. H. (2016). A teaching intervention that increases underserved college students' success. *Peer Review, 18*(1/2), 31-36.

Designing Effective Writing Assignments Series

PART 3: Strategies for Increasing the Efficiency of the Grading and Feedback Process

No matter how well designed a writing assignment is, the grading process will likely take longer and be more intensive than other types of activities for you and your TAs. However, this is time well-spent, as research has shown that timely feedback focused on learning outcomes plays an important role in helping students learn (Ambrose et al., 2010; Chickering & Gamson, 1987; Kuh, 2008). You can make the feedback and grading process much more efficient by designing clear assignments and allowing your students plenty of time to ask questions. Here are a few strategies to get you started, adapted from Bean (2011) and Glenn & Goldthwaite (2014):

Strategies	Teaching Suggestions
Set clear expectations	Make your expectations clear in both the writing assignment prompt and your evaluation criteria, and allow time for questions when you introduce an assignment. The clearer you are up front, the less time you will need to spend correcting misunderstandings when grading.
Break the assignment up	Consider assigning multiple short writing projects throughout the term, rather than a single long project at the end. This will cut down on grading time overall, especially during the already busy end-of-term.
Check-in with students	Have your students send you a short prospectus or a paragraph explaining their thesis. This can offer you an opportunity to check-in with your students and catch mistakes or misunderstandings early, saving you in feedback time later.
Schedule strategically	Consider your and your TA's schedules when assigning due dates for writing projects, and if possible, stagger due dates if you are teaching multiple classes.
Identify common feedback trends	While grading, create a list of comments you make repeatedly on students' papers, and then use this list to revise your assignment so that it is clearer for future classes. Also, go over your list with your students when you return their papers, so that they can have a clearer understanding of your expectations on future writing assignments.
Consider allowing revisions/rewrites	Bean (2011) argues that the time an instructor spends providing feedback is largely wasted unless students *do something* with that feedback. Therefore, he suggests that instructors should comment on late-stage drafts and allow rewrites. This also has the benefit of improving the overall quality of the writing received from students.

However your assignment is designed, Herrington (1981) argues that ultimately, "if the teacher treats the resulting writing as unimportant, or merely samples of writing, then the students begin to resent having to write" (p. 124). Nelson (1990) concurs, noting that students rely on instructor feedback to help them understand course and instructor expectations; without that feedback, students may have trouble evaluating and improving their writing as the term progresses. Therefore, you should carefully consider how you and your TAs will provide feedback on your students' writing.

Additional Resources
Additionally, please see our resource series titled "Effective Feedback," for more strategies and suggestions on providing effective feedback on a variety of different types of activities.

Citation

Center for Educational Effectiveness [CEE]. (2018). Designing Effective Writing Assignments Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Engaged Reading for Learning in Higher Education Series

PART 1: Understanding the Challenges to and Process of Engaged Reading

Engaging with discipline specific content is a requirement for learning in higher education. Reading is a primary vehicle for imparting this content knowledge, however, instructor commonly note that students "do not read required material." So why does this matter? What are the common challenges students encounter? How might instructors design learning to address these gaps? This series aims to address such questions and begins by establishing the research-based importance. It is then organized around the three stages of reading: Before Reading, While Reading, and After Reading. Each stage is described and accompanied by examples of challenges students face paired with teaching suggestions and followed by concrete examples of assignments designed for higher education.

Reading printed text versus digital text (Mangen et al., 2012), writing notes longhand instead of typing on the computer (Mueller & Openheimer, 2014), and articulating notes into your own words instead of highlighting text (Dunlosky et al., 2013) all require deeper cognitive processes and, therefore, contribute to greater learning. However, in an increasingly technological society, researchers note the consequences of screen time on communication (Turkle, 2015). Educational psychologists and cognitive scientists find that explanatory questioning and verbalizing are some of the best strategies for learning and retaining (2013). In other words, deep reading which cognitively engages students by required explanation is one of the most effective mechanisms for learning. Furthermore, reading and writing are directly associated, so becoming a more engaged reader can also affect the quality of a student's writing. Becoming aware of the challenges to engagement and recognizing reading as a process can better prepare the instructor in a holistic plan to increase reading engagement.

Recognize the Shift in Attention and Causes of This

Hayles (2007) argues that instant access has led to the shift away from deep attention, whereby readers concentrate for long periods of time, ignore external distractions, and focus on a "lone" information stream. Instead, students commonly suffer from hyper attention by multi-tasking and seeking multiple stimuli and information streams. In particular, research suggests that greater multitasking is associated with a reduced capacity to filter out erroneous stimuli (Ophir et al., 2011). As technology become more ubiquitous, it also becomes more difficult for students to focus on sustained reading of complex text (Hayles, 2007). This may result in surface reading whereby students accept information tacitly, tend only to explicit information which is seen as isolated, and fail to make connections across concepts and disciplines (Hermida, 2009).

The Process of Reading and Disciplinary Literacy

Beyond basic literacy and decoding, disciplinary literacy includes teaching of the skills that particular disciplines use to create, communicate, and critique knowledge. Within disciplines, there is no doubt a body of specialized content knowledge, but less tangible are the metacognitive and procedural knowledge and skills that students need in order to engage more deeply with the reading and the content (Shanahan & Shanahan, 2012). As Hermida describes it, in deep reading, students critically examine and challenge the author's message, making connections between disciplines and to prior knowledge (2009).

Research also suggests that within disciplines, instructors can demonstrate for students their own thinking processes while reading. In particular, read-aloud strategies can begin moving novice readers to expert. Instead of sole focus on facts and content of the text, as experts, instructors can model these modes of inquiry (Wineburg, 1998). In other words, they can talk through how they engage with a particular reading, describing their mental processes as they engage with a reading, so that students can hear and "see" what it looks like to read like an expert.

When designing instruction aimed at more deeply engaging students in reading, it should also be noted that the overall process of reading encompasses myriad stages, so that implemented strategies should combine those for Before Reading (to prepare for the text), While Reading (to actively engage with the text), and After Reading (to respond, explore, or apply).

The next three parts unpack challenges and suggestions for each stage of the reading process. As some challenges may be inherent to more than one stage of reading, the same challenges appear in more than one table or part of the series. In addition to this series, we also suggest referencing our resource series titled "Designing Effective Writing Assignments," as some of the suggested strategies are discussed.

Additional Resources

- For a summary of Active Reading according to John Bean, visit this site

Citation

Center for Educational Effectiveness [CEE]. (2019). Engaged Reading for Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Engaged Reading for Learning in Higher Education Series

PART 2: Strategies to Increase Engagement Before Reading

To fully engage readers, it is critical to consider reading as a holistic process, one that involves opportunities to increase reader access before, during, and after reading of the actual text. Before Reading a text, instructors can guide students in ways to build connections with their background knowledge or experiences, to establish the purpose of the reading, to preview the text, or to make predictions. Each of these strategies can make text more comprehensible to the students. The table below highlights some of the common student challenges that may affect this stage of the reading process, paired with teaching suggestions.

Promoting...[1]	Teaching Suggestions
An effective reading process	Demonstrate your own reading process: when you skim, when you read carefully, when you study a text in detail Use anticipatory guides (see example below)
An ability to reconstruct arguments while reading	Go through a sample text with students, writing "what it says" and "what it does" statements for each paragraph
An ability to assimilate the unfamiliar; may resist uncomfortable or disorienting perspectives	Explain this phenomenon to students so that they are aware and draw analogies to other times when students have had to assimilate other unfamiliar views. Make explicit efforts at intersectional discussion through classroom dialogues, assignments, and/or materials, thus exposing all races, genders, sexual identities, etc. to diverse lived experiences and beliefs. In lectures or discussions, draw contrasts between ordinary ways of looking at the subject and the author's surprising way
An understanding of the rhetorical context	Through lectures or reading guides, set the stage for readings, especially primary materials Prime students to ask these questions: • Who is the author? • Who is the intended audience? • What occasion prompted this writing? What is the author's purpose?
An ability to adapt to different kinds of discourse, genres, and purposes	Explain how your own reading process varies when you encounter different genres of text: how to read a textbook versus a primary source, how to read a scientific paper, how to read a poem Demonstrate how you interact with parts of a text: table of contents, headings, charts and graphs, references Explain the "anatomy" of an academic journal article and the purpose of each part by pointing out forms of evidence, key phrases, variables, and/or figures on which to focus
A familiarity with cultural codes and vocabulary	Show students the function of cultural codes by discussing the background knowledge needed to understand anecdotes, cartoons, colloquialisms, or jokes
An ability to engage with complex syntax	Refer students who have trouble decoding texts (perhaps they have a learning or reading disability) to a learning assistance center (UC Davis Writing Support Center)

[1] Adapted from Bean (2011)

Assignment Example: Anticipation Guide
An Anticipation Guide (AG) is one example of an assignment that instructor can design and implement in classes prior to the reading of a text. This type of assignment provides a scaffold (a progressive way to deepen student understanding and increase independence) for student engagement with disciplinary texts. With an AG, instructors can activate prior knowledge, stimulate interest and curiosity, focus attention on key concepts, or provide a mechanism for predictions of the text – all of which promote engagement.

The following AG illustrates how one instructor engaged her undergraduate Sociology class on Social Stratification. Her purpose was for students to read an ethnographic work on race and class differences in parenting styles. The design of the guide includes statements upon which students can find either supporting or refuting evidence in the text. This works to not only preview important ideas in the book, but to also provide a framework for discussion of how to support arguments with empirical evidence once the reading is complete.

Anticipation Guide: Lareau's *Unequal Childhood* for a Sociology class

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1. Read the "Consider These" statements and denote whether you agree or disagree with the statements.
2. As you read the text, refer back to the statements and take notes about these assertions.
3. After you have completed your reading, indicate whether Lareau's empirical evidence supported them.

***Before Reading*: Agree or Disagree?**	**Consider These…**	***After Reading*: Support or No Support?**
	1. Since class distinctions are not as visible as oft-studied race and gender, they explain less about social interactions and inequalities. ***Findings and Empirical Evidence:***	
	2. There is variation in the ways working class and poor families, in contrast to middle class families, parent children which impacts children's life chances. ***Findings and Empirical Evidence:***	
	3. Social institutions help to reproduce inequalities by privileging certain types of behavior over other types. ***Findings and Empirical Evidence:***	
	4. All children are equally equipped to navigate institutional bureaucracies (e.g., University education) in the same way. ***Findings and Empirical Evidence:***	
	5. There are no associations between parenting styles within families and children's interactions with larger societal institutions and their gatekeepers (i.e., teachers, doctors, professors, employers) outside of families. ***Findings and Empirical Evidence:***	
	6. Researchers have the capacity to balance reflexivity of their work with sharing their empirical results. ***Findings and Empirical Evidence:***	

Additional Resources

- For annotated examples of Instructional Strategies by Baylor University, download this word doc
- For examples of Anticipation and Predication Guides by National Council of Special Education and National Behaviour Support Service, visit this site
- For an article about writing effective statements for Anticipation Guides, visit this site

Citation

Center for Educational Effectiveness [CEE]. (2019). Engaged Reading for Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

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Engaged Reading for Learning in Higher Education Series

APPENDIX 2: Before Reading Activities

Before Reading Activity: Activating prior knowledge using Carousel Brainstorming

This strategy helps students to activate their prior knowledge about a topic. It also serves as a vehicle for students to learn additional information that is needed to understand a particular reading. This strategy works best in smaller classes (30 students or fewer), but it can be modified to work in larger classes, in an online discussion forum, in Google Docs, or on an online platform like padlet.

1. Choose five related concepts to determine your students' background knowledge on the topic of a reading. Write each topic on one piece of flip chart paper (at the top). Number the topics (1 through 5) and post them in order around the room.

2. Assign each student a number from one to five. This is their Group number. Then have all students move to the paper labeled with their assigned number. Give each group a different-colored marker to record their information.

3. Give the groups about one minute to write on the flip chart paper everything they know or have learned about the topic. If they are not sure about their information, they can write a "?" by it.

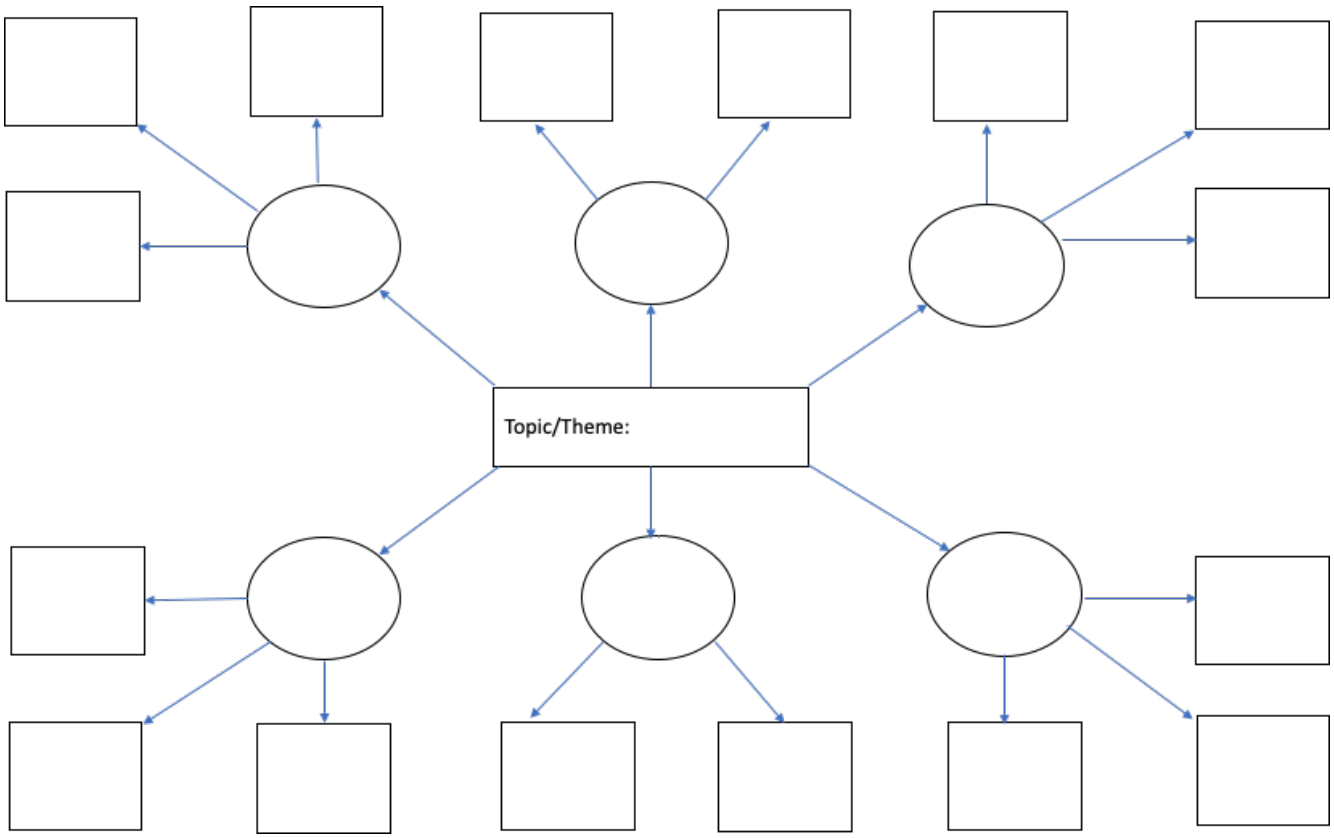
4. After one minute, the groups move to the topic with the next higher number (Group 1 goes to topic 2, etc. and Group 5 goes to topic 1). At the next topic, they read what the other groups have written, make corrections or additions, and add any new information they know. As they move to each station, you might want to add a little more time for reading the preceding entries. All writing they do should be with their original colored marker (e.g., all of Group 1's entries on the five topics are in red).

5. Continue this process until each group is back to its original number. After students have read what the other groups added to that topic, they move back to their seats.

6. Have students reflect on what they have learned. Do they have questions for the other groups? Do they see connections between the topics? What else would they like to know? How did this strategy help them determine what they knew and did not know about the topic?

Adapted from: Baylor University (n.d.) "Annotated Examples of Strategies."
https://www.baylor.edu/content/services/document.php/69291.doc

Concept Map Brainstorm
Generating concept maps can help students to see the relationships among ideas prior to reading. Simply ask students to draw a concept map of everything they already know about a topic they will be reading about. Students don't have to use a pre-drawn template, like the one below, as they may find relationships to be more complex than such a diagram can accommodate; however, showing them a map in advance may help to clarify the task.



Help Students Develop a Process for Reading a Scientific Article

Utah State University has put together a helpful video entitled "How Do You Read Scientific Articles Efficiently" that explains an effective method for reading and understanding scientific journal articles. Explicitly talking to students about a method for reading complex disciplinary texts can help scaffold the reading process as they learn to navigate complex disciplinary texts.

This page from the Utah State University Library explains the "Anatomy of a Scientific Article" and accompanies the video below.

URLS embedded in this resource:

Utah State University (n.d.): How Do You Read Scientific Articles Efficiently
https://www.youtube.com/watch?time_continue=32&v=ubcGvwKfRnI

Utah State University (n.d.): Anatomy of a Scientific Article.
https://usu.instructure.com/courses/45089/pages/anatomy-of-a-scientific-article

A Strategy for Previewing Textbooks (THIEVES)

This activity will help students with comprehension by allowing them to preview the text structure in an organized manner. This pre-reading strategy will allow students to "steal" information before they actually begin reading the chapter. Students will survey the text in the following manner:

Title – Students sometimes skip the title, but it provides valuable information by establishing the topic and the context of the chapter. If the text is written in chronological order, the title may indicate where the chapter would fit on a timeline. Some questions that the student may ask while looking at the title include:

- What do I already know about this topic?
- How does it connect to the previous chapter?
- How can I turn this title into a question to focus my reading?

Headings – Headings indicate the important sections of the chapter. They help students identify the specific topics covered. Students can turn the headings into questions to create a more focused look at information covered in the chapter. Some questions that the student may ask while looking at the headings include:

- How does this heading let me know what I will be reading about?
- What topic will be discussed in the paragraphs below this heading?
- How can I turn this heading into a question that can be answered when I read this section?

Introduction – The introduction provides an overview of the chapter. It may come after the title and before the first heading. Sometimes the goals and objectives of the chapter are stated in the introduction. Some questions that students may ask when previewing the introduction include:

- Is the introduction marked or do I have to locate it?
- Does the first paragraph introduce the chapter?
- What important information will I find in the introduction?
- Do I already know anything about this?

The first sentence of each paragraph – First sentences are often the topic sentences of the paragraph, and by reading these, a student can get an idea of the information that will be contained in the chapter.

Visuals and Vocabulary – Students should look at all pictures, charts, tables, maps and graphs contained in the chapter. They need to read the captions and labels on each. This enables students to learn a little about the topic before they begin to read. Some questions that students may ask about the visuals include:

- How do these visuals relate to the content of this chapter?
- What can I learn from them?
- How do the captions help me understand the visual?

Vocabulary unlocks the meaning of the content. Students need to understand vocabulary in order to comprehend the text. Vocabulary may or may not be identified as key words. It might be highlighted or italicized in the text. Some questions that students may ask about the vocabulary include:

- Is there a list of key words and are they defined In the glossary?
- Are there important words in boldface or italics?
- Do I know the important words?
- Are there other words I don't know?

End-of-Chapter Questions – These questions indicate important points and concepts from the chapter. Just reading these questions will help students target information that is important in the text and establish a purpose for reading. Some questions that students may ask about the end-of-chapter questions include:

- What do these questions ask?
- What information will be important in this chapter?
- How do I locate this information in the text?

Summary – Many texts contain a summary at the end of the chapter. Students can read the summary to activate prior knowledge and give them an idea of the important concepts contained in the chapter.

Adapted from: Baylor University (n.d.) "Annotated Examples of Strategies."
https://www.baylor.edu/content/services/document.php/69291.doc

Engaged Reading for Learning in Higher Education Series

PART 3: Strategies to Increase Engagement While Reading

Once students begin to read an assigned text, challenges with process, arguments, rhetoric, and language may all impede comprehension. Instructors might consider the following suggestions:

Promoting...[1]	Teaching Suggestions
An effective reading process	Require students to write notes in margins of text by rephrasing onto their own words
An ability to reconstruct arguments while reading	Help students write single statements in margins summarizing main points as reading processes Have students make outlines, concept maps, graphic organizers, flowcharts, or other diagrams of articles
An ability to assimilate the unfamiliar; may resist uncomfortable or disorienting perspectives	In lectures or discussions, draw contrasts between ordinary ways of looking at the subject and the author's surprising way
An understanding of the rhetorical context	Create reading guides (see example below) that include information about the author and rhetorical context about the reading
An ability to interact with the text	Use a combination of response strategies: marginal notations, reading guides (see example below), guided journals
A familiarity with cultural codes and vocabulary	Encourage students to acquire the habit of using the dictionary Create reading guides (see example below) that explain cultural codes, allusions, and historical events and that define technical terms or words used in unusual ways
An ability to engage with complex syntax	Have students verbalize or explain complex passages in their own words Have students practice rewriting particularly long sentences into several shorter ones

[1] Adapted from Bean (2011)

Assignment Example: Reading Guide

A Reading Guide (RG) is one particular assignment that instructors can design to address challenges such as understanding rhetorical context or lacking the ability to interact with text or vocabulary. RGs provide the opportunity for instructors to impact student process (their interaction and engagement) with the text in "real time" while students read independently. As well, a RG can be designed as a concrete model of the instructor's own metacognitive process of reading a text, navigating the students through the reading by defining, filling in, explaining, and illuminating (Bean, 2011). At the same time, there is still opportunity to integrate questions/response/writing to motivate critical thinking.

The following RG illustrates how one instructor engaged his first-year seminar in the nature/nurture controversy. His purpose was for students to read an entire peer-reviewed paper on this issue and gender identity. The design of the guide demonstrates his own thought processes to students, supports them through their own reading, and stretches their thinking through critical questioning.

Reading Guide for a Scientific Article for a First-Year Seminar on Nature/Nurture Controversy in Gender Identity

Reading Guide
Rebecca Knickmeyer, Simon Baron-Cohen, Peter Raggatt, and Kevin Taylor, "*Foetal Testosterone, Social Relationships, and Restricted Interests in Children*," Journal of Child Psychology and Psychiatry, 2005, 46(2), 198-210.

Background: This article can't be fully understood by non-specialists (you and me) because we aren't its intended audience. The authors are writing for clinical biochemists and experimental psychologists who do their research on gendered behaviors. As non-expert readers, we can't understand either the biochemistry or the complex methods of statistical analysis. However, we can understand the main gist of their research. This short reading guide will help you understand the article's big picture and offer strategies for reading any complex scientific article.

1. Look at the six-column reference list at the end. These articles have been closely read by the researchers and constitute the current state of knowledge that the researchers want to add to. Much of the introduction reviews the important ideas of these articles, identifying what is currently known and still unknown. Each of the articles in this huge list is explicitly mentioned in the article.

2. Read the title of the article and abstract. The title lets us know that this article attempts to measure the effect of fetal testosterone on two variables: social relationships and restricted interests in children. The abstract gives you a big picture overview of the whole article.

3. Read the introduction – pages 198-200 – trying to understand the basic gist of each paragraph. This introduction reviews the previous literature (hence all the bibliographic references in parentheses) and explains the general theory behind their research. ***Question 1: If you could read one of the research studies reviewed in the introduction, which would it be and why? Provide a short explanation for your response.***

4. Basically, the researchers are going to correlate the amount of fetal testosterone in each mother's amniotic fluid (taken when the child was in utero) with each mother's answers for her child on the Children's Communication Checklist (CCC) when the child was four years old. Read carefully the research hypothesis at the top of page 201, left column (last sentence in introduction). ***Question 2: Restate the hypothesis in ordinary language (as opposed to scientific). Make the hypothesis understandable to an 8th grader.***

5. Under METHODS (starting on page 201) read the first two sections: *participants* and *Outcome Variable: the Children's Communication Checklist*. Look carefully at Table 1, which gives sample items from the Children's Communication Checklist. The range indicates the possible highest and lowest scores for each part of the checklist. The impairment column shows the score below which the child shows an abnormal or "impaired" score. The sample items column gives examples of questions on the CCC for each part. ***Question 3: Based on these sample items, what do you think is meant by "restricted interests"? How are restricted interests related to autism?***

6. Skim the rest of METHODS and all of RESULTS. Focus only on what you can understand; don't worry about what you don't understand. These sections are aimed at insiders with expert knowledge of experimental design and statistical methods. Note: I probably can't understand any more than you can and perhaps less than some of you majoring in science.

7. Read carefully the DISCUSSION section on pages 205-206 to see the scientists' discussion of whether their data supported their initial hypotheses. ***Question 4: Based on this study, how would a baby exposed to high levels of fetal testosterone differ in behavior from a baby exposed to lower levels of testosterone, regardless of whether the baby was male or female? In general, how did boys differ from girls with regard to social relationships and restricted interests?***

8. Here are two statements from the DISCUSSION section:

- "[Our research] indicates that in both boys and girls, higher fT levels are associated with poorer quality of social relationships" (205).
- "[Our research] indicates that in both boys and girls, higher fT levels are associated with more restricted interests" (205).

For each of these results, draw a line graph showing the indicated relationship. (You don't need to plot the exact coordinates, just the general shape of the curve.) Label the axes for clarity to an outside reader and then create a title for your graph that explains what the graph shows. Before drawing your graph, consider these questions:

- What goes on the x-axis? What is the unit of measurement?
- What goes on the y-axis? What is the unit of measurement?

Additional Resources:

- For a description of novice versus expert readers according to John Bean, download this word document
- For a pdf of slides about reading and writing rhetorically, visit this site
- For a handout on reading rhetorically, visit this site
- For a brief how-to guide on reading to analyze a text, visit this site

Citation

Center for Educational Effectiveness [CEE]. (2019). Engaged Reading for Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

References

Bean, J.C. (2011). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. (2nd ed.) San Francisco, CA: Jossey-Bass.

Engaged Reading for Learning in Higher Education Series

APPENDIX 3: While Reading Activities

Annotating Texts

Encouraging students to write in the margins of their course texts helps them enter into active conversation with the text, deepening their engagement with the material as they create connections between new information and what they already know about the topic. At the same time, they are strengthening already-existing connections.

Annotating the text is more than highlighting, which can become a rote process, giving students the impression that they are understanding the text, when they may not be gaining the full benefit from their reading. Instructors can encourage students to annotate texts by integrating a low-stakes annotation assignment into the course early in the quarter to set the expectation that students should be actively commenting on the course texts as they read. To introduce such an assignment, it is often helpful for you, as the instructor, to explain your own annotation practices when you read, and perhaps even show students on the document camera during class an article that you have read and annotated.

Students can also be reminded that active readers don't merely underline or highlight: they write questions that occur to them in the margins as they read, note where they feel confused by the text, jot down their reactions to statements made in the readings, and restate important points and sub-points in their own words in the margins of the text. (Students who don't wish to write in their books might use post-it notes to make their annotations.) By making margin notes, students process the information actively as they enter into dialogue with the text. Although we may be tempted, as instructors, to think that students are already engaging actively with assigned texts every time they read, it is nevertheless helpful to explicitly show students how to annotate and to explain the importance of close reading in the learning of your discipline's content.

Exemplar: Annotation of a Geology Textbook

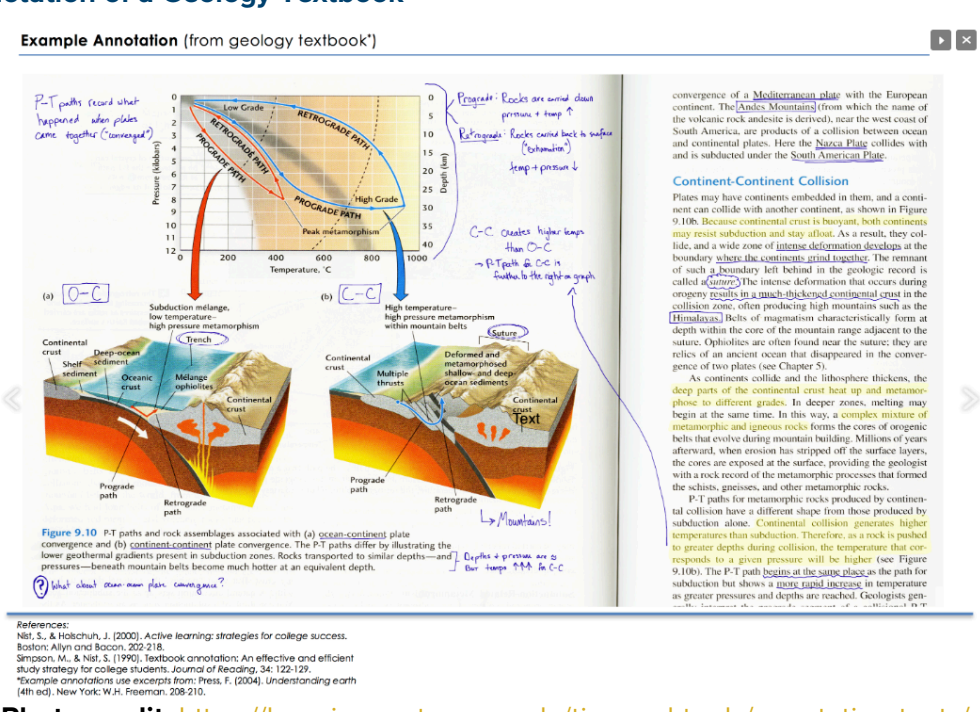


Photo credit: https://learningcenter.unc.edu/tips-and-tools/annotating-texts/

Student Goals: Building Knowledge of the Discipline of Science
In a science classroom, students learn about the discipline of science and themselves as readers, users, and consumers of science by way of the following discipline-specific goals.

Scientific Documents
- I know how to read and/or represent scientific content and ideas in diverse scientific documents: reports, data tables and graphs, illustrations and other visuals, equations, textbooks, and models.

Scientific Text
- I know to look for the predictable ways science text is structured: classification and definition, structure and function, process and interaction, claim and evidence, and procedure.
- I know that visuals and numerical representations are particularly powerful ways to convey complex scientific text and ideas.
- Because I know that science text is often tightly packed with new terms and ideas, I preview and reread it, and I chunk and restate the chunks in familiar language to keep track of the gist as I read.
- Because science textbooks often use passive voice, I know to restate sentences in active voice to keep track of the subject and action.
- Because science textbooks often use complex sentence constructions, I know to find the logical connecting words between ideas.

Scientific Language
- I know that when familiar terms are used in unfamiliar ways, I can redefine them in context to clear up confusion.
- I know that using scientific names and labels is a shortcut for communicating precisely about scientific processes and structures.

Scientific Sourcing
- I source a science document, set of data, or piece of evidence as a step in evaluating its authority or reliability.

Scientific Inquiry
- Knowing that scientific inquiry involves cycles of questioning, making observations, and explaining and evaluating observations helps me read science investigations and describe my own.

Scientific Evidence
- I know that scientific claims must be supported by evidence that is carefully collected, evaluated, and reported so that others can judge its value.

Scientific Explanation
- I can write a scientific explanation that makes a claim about observations of the natural world and convincingly defends the claim with evidence.

Scientific Corroboration
- I know that corroborating findings in science is a way to find out how likely they are to be true.

Scientific Understanding
- I know that for scientific understanding to evolve, science moves forward using best evidence and information, even though these may be proved incomplete or wrong in the future.

Conceptual Change
- I monitor my schema to decide whether compelling evidence about scientific claims changes my personal understanding of the natural world.

Scientific Identity
- I am aware of my evolving identity as a reader, user, and consumer of science.

Student Goals: Building Knowledge of the Discipline of Mathematics
In a mathematics classroom, students learn about the discipline of mathematics and themselves as readers and users of mathematics by way of the following discipline-specific goals.

Conceptual Categories*
- I can identify the purpose for and use different areas of math knowledge such as number, algebra, functions, geometry, statistics and probability, and modeling.

Mathematical Reasoning
- I can think interchangeably about a math problem in abstract and quantitative terms. I monitor the reasonableness of the relationship between my abstract and quantitative thinking.

Mathematical Representation
- I can read and represent mathematics with words, formulas, and mathematical symbols. I can read and create diagrams, tables, graphs, and flowcharts for mathematical purposes.

Mathematical Language
- I understand the precise nature of mathematical language and use it to communicate exactly.

Problem Identification
- I can read and identify “the problem” in a math problem.

Problem Solving
- I make conjectures about and evaluate alternative approaches to a problem and then monitor the reasonableness of a solution approach as it proceeds.

Accuracy
- I understand that in mathematics there may be alternate approaches to a solution, but only one correct answer. I check that the final solution makes sense and all computation is correct.

Pattern Application
- I look for mathematical structures, approaches, and patterns that I can apply to the solution of new problems.

Mathematical Identity
- I am aware of my evolving identity as a reader and user of mathematics.

*These conceptual categories are drawn from the Common Core State Standards for Mathematical Practice.

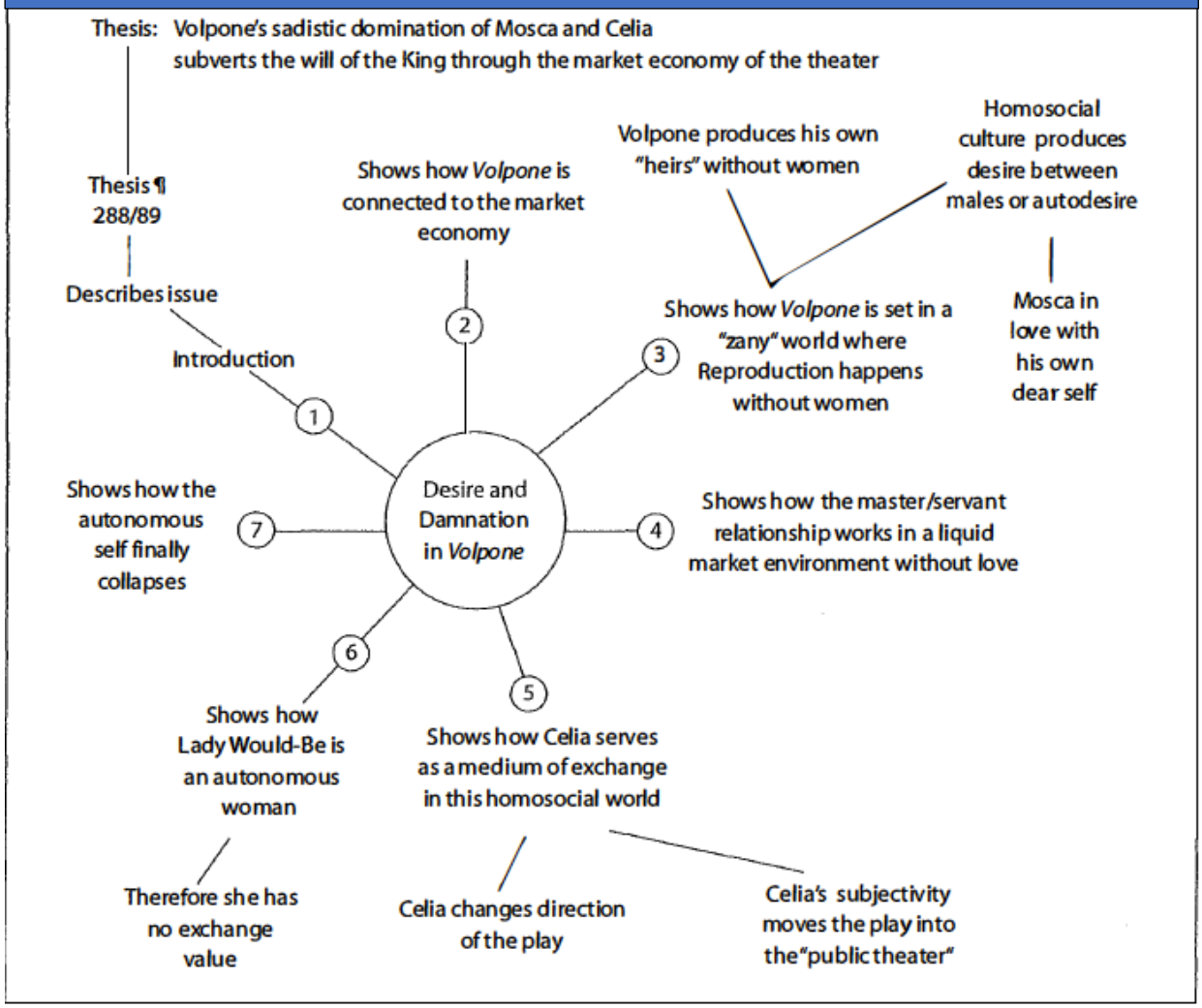
Excerpted from: Schoenbach, R., Greenleaf, C., & Murphy, L. (2012). *Reading for understanding: How reading apprenticeship improves disciplinary learning in secondary and college classrooms*. San Francisco, CA: John Wiley & Sons. Pp. 275-276 & 283.

Graphic Organizers

Bean (2011) notes: "For some students, representing a text visually is more powerful than representing it through marginal notations, traditional outlining, or even summary writing. Graphic organizers can take the form of flowcharts, concept maps, tree diagrams, sketches, or drawings. Roberts and Roberts (2008) give their students choices in how they want to represent their deep reading of a text (on a given day students might submit a summary, a page of notes, or even a song), but they particularly recommend graphic organizers. [The exemplar below] shows how one…student in a Renaissance drama course represented an article on Jonson's Volpone (Marchitelt 1991)," (p. 179).

Exemplar: Graphic Organizer

Student's Graphic Organizer for "Desire and Domination in *Volpone*"



Adapted from: Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass.

References found in this resource (Graphic Organizers)

Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass.

Marchitell, H. (1991). Desire and domination in Volpone. *Studies in English literature, 1500-1900*, *31*(2), 287-308.

Roberts, J. C., & Roberts, K. A. (2008). Deep reading, cost/benefit, and the construction of meaning: Enhancing reading comprehension and deep learning in sociology courses. *Teaching Sociology*, *36*(2), 125-140.

Teach Students "What It Says" and "What It Does"
According to Bean (2011), "[A] helpful way to teach students to understand structural function in a text is to show them how to write "what it says" and "what it does" statements for each paragraph (Ramage, Bean, and Johnson, 2009; Bean, Chappell, and Gillam, 2011; Bruffee, 1993). A "what it says" statement is a summary of the paragraph's content – the paragraph's stated or implied topic sentence. A "what it does" statement describes the paragraph's purpose or function within the essay, for example, "Provides evidence for the author's first main reason," "Summarizes an opposing view," "Provides statistical data to support a point," or "Uses an analogy to clarify the idea in the previous paragraph." Here are examples for the paragraph you are now reading:

Says: Instructors can teach students about structure by having them write "what it says" and "what it does" statements.

Does: Gives another strategy for helping students become better readers.

Asking students to write out "what it says" and "what it does" statements for each paragraph in a scholarly article in your field will ensure not only careful reading of the article but also increased awareness of the article's structure. [The exemplar below] shows [a] "Says/Does" assignments for a first-year seminar on the nature/nurture controversy in gender identity. In this Says/Does assignment, [the instructor] composed the Says/Does statements for the first [several] paragraphs of an article and asked students to do the same for the rest of the article" (pp. 170-172).

Adapted from: Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass. pp. 170-172.

Exemplar: "What It Says/What it Does" for a First-Year Seminar on Gender Identity

Making Says/Does Statements to Promote Reading for Meaning
For Monday's class we will discuss psychologist Steven Pinker's argument in support of Lawrence Summers' controversial speech about why so few women hold tenured positions in math, physics, and engineering at top research universities. As models, I have made says/does statements for the first three paragraphs. As preparation for the discussion, make says/does statements for the remaining paragraphs in Pinker's article. Bring your says/does statements to class, where I will collect them.

Paragraph	What It Says	What It Does
1	Since the 1970s, the proportion of women in many scientific fields has increased significantly, and it would be morally wrong and hurtful to science to turn back the clock.	Introduces the subject of gender difference and presents author's assurance that he respects and values women scientists
2	Although Summers was not trying to turn back the clock, many prominent scientists and engineers protested vehemently against his speech.	Makes transition to Summers' case and lists examples of negative reaction against Summers
3	Summers never claimed that women have inferior math abilities; rather, he attributed women's underrepresentation in science and engineering to three factors: possible discrimination; possible biological gender differences; and women's reluctance to sacrifice family and child-rearing to time-intensive jobs.	Rejects the popular press's misrepresentation of Summers by summarizing Summers' argument
4	*YOU DO THE REST*	

5		

Adapted from: Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass. p. 171.

References found in this resource ("What It Says" and "What It Does")

Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass.

Bean, J. C., Chappell, V. A., & Gillam, A. M. (2011). *Reading rhetorically*. Longman.

Bruffee, K. A. (1993). *Collaborative Learning: Higher education, interdependence, and the authority of knowledge*. John Hopkins University Press.

Ramage, J. D., Bean, J. C., & Johnson, J. (2009). *The Allyn & Bacon guide to writing*, 5th ed., New York: Longman.

Template: "What It Says/What it Does"

Making Says/Does Statements to Promote Reading for Meaning
Instructions:

Paragraph	What It Says	What It Does
1	*Write a paraphrase of what the first paragraph says here.*	*Explain what the paragraph does (e.g., introduce the problem, review the literature, etc.) here.*
2	*Write a paraphrase of what the second paragraph says here.*	*Explain what the paragraph does (e.g., introduce the problem, review the literature, etc.) here.*
3	*Write a paraphrase of what the third paragraph says here.*	*Explain what the paragraph does (e.g., introduce the problem, review the literature, etc.) here.*
4	*YOU DO THE REST*	
5		

Adapted from: Bean, J. C. (2011). Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking and Active Learning in the Classroom, 2nd edition. San Francisco, CA: Jossey Bass.

Engaged Reading for Learning in Higher Education Series

PART 4: Strategies to Increase Engagement After Reading

Once students have read through the entire text, instructors can promote still more engagement during the After Reading phase. At this point, further strategies focus on improving self-regulatory actions (i.e., goal-oriented behaviors initiated by the student) that can increase student's comprehension. Prompts and assignments that require students to explore the reading more deeply, apply the reading to new concepts, or extend to other learning can be personalized and integrated into student's cognitive structures. Encouraging students to reflect on their understanding and to think critically about the validity of the reading also support this After Reading phase. The following table highlights some of the challenges that students may encounter and the teaching suggestions to overcome them.

Promoting...[1]	Teaching Suggestions
An effective reading process	Assign narrative summary writing or creating graphic organizers (see "Using Sociological Imagination" below) Require students to free-write in response to critical thinking problems about texts (reading logs, summary/response notebooks)
An ability to reconstruct arguments while reading	Have students make outlines, concept maps, graphic organizers, flowcharts, or other diagrams of articles
An ability to assimilate the unfamiliar; may resist uncomfortable or disorienting perspectives	In lectures or discussions, draw contrasts between ordinary ways of looking at the subject and the author's surprising way
An ability to interact with the text	Use a combination of response strategies: reading logs and summary/response notebooks
An ability to engage with complex syntax	Have students verbalize or explain complex passages in their own words Have students practice rewriting particularly long sentences into several shorter ones

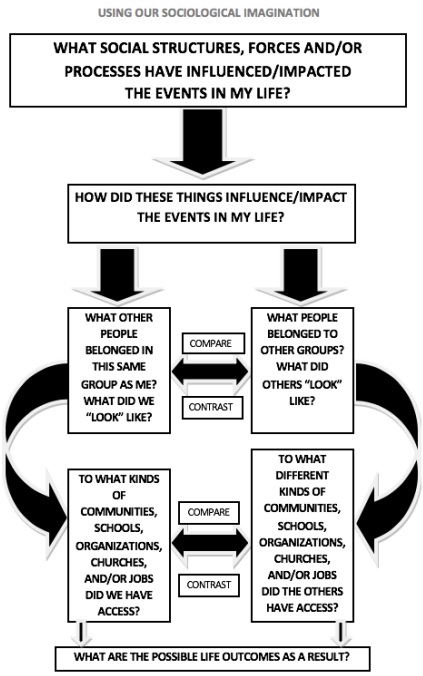
[1] Adapted from Bean (2011)

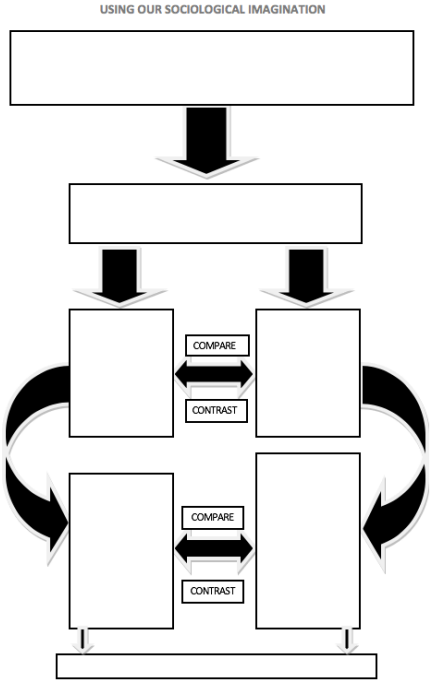
Assignment Example: Graphic Organizer

A graphic organizer is one example of an assignment that instructors can design and implement in classes after the reading of a text. This type of assignment provides a structure for students to organize key concepts and ideas from the text or their own thoughts and responses to the reading. With a graphic organizer, instructors can provide a basic structure for organization which might be a tangible representation of the way in which instructors would organize their own thoughts, thus modeling the less tangible processes of cognition for students.

The following Graphic Organizer illustrates how one instructor engaged her undergraduate students in an Introduction to Sociology course. This course is taken to meet a General Education requirement, so it is often enrolled with students from all disciplines with no prior coursework in sociology. Her purpose was for students to read a text and peer-reviewed article in order to understand the process of using the Sociological Imagination, a process for sociological analysis, and to then apply it to their own lives. The design of the graphic organizer highlights this process for students with questions they should consider in order to activate this way of thinking. The same diagram left blank, provides a structure for students' thought processes as they work to apply their own thinking through this lens. The diagram on the left works as a summary of both the content and processes depicted in the reading, while the diagram on the right provides a scaffold and structure for students to extend the reading and apply to their own biographies.

Graphic Organizer: Using the Sociological Imagination to Write a Personal Biography





Additional Resources:

- For an article on how to get students involved in note-taking with graphic organizers, visit this site
- For an article on increasing text comprehension using graphic organizers, visit this site
- For a one-page guide about getting the main point of a reading, visit this site
- For an article on using College Literature Circles while reading, visit this site

Citation

Center for Educational Effectiveness [CEE]. (2019). Engaged Reading for Learning Series. *Just-in-Time Teaching Resources*. Retrieved from http://cee.ucdavis.edu/JITT

References

Bean, J.C. (2011). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. (2nd ed.) San Francisco, CA: Jossey-Bass.

Facilitating Laboratory Activities Series

PART 1: Best Practices for Planning and Facilitating a STEM Laboratory Class

Laboratory sections can play an important role in increasing the persistence of STEM majors by providing students with opportunities for practical, relevant learning in science and engineering, and pushing them to identify professionally as a scientists and engineers (Graham et al., 2013). Graduates with STEM degrees are in increasing demand across the world; however, as of 2013, less than half of the three million students entering US colleges as intended STEM majors persisted to graduation in a STEM degree (Graham et al., 2013). Laboratory sections provide important spaces where students can gain a better understanding of key course and STEM concepts by applying those concepts in practical activities. This resource will offer a number of specific strategies and suggestions for effectively planning and facilitating a laboratory section.

Basic principles for planning an effective undergraduate laboratory section

Actively creating connections between lecture material and laboratory activities can help build meaning and relevance for your students. Nilson (2010) emphasizes the importance of placing lab activities in context with course concepts and the bigger scientific picture before moving on to the actual activity. This can help students create connections between the more theoretical concepts they learn in lecture, and the practical application of those concepts in their lab section. Here are a few basic principles to keep in mind when planning your lab section:

Strategies	Teaching Suggestions
Design and assess projects that align with your learning outcomes.	Appropriate goals for a laboratory section could include helping students understand theory by observing and verifying concepts, having them go through a research and design processes, helping them improve their powers of reasoning by manipulating cause/effect relationships, and acquainting them with essential lab equipment. If possible, assess these learning outcomes on exams in ways that reference or depend on some of the learning from lab. This sends a clear message to students that the lab learning is integrated, relevant, and worth studying and really learning.
Use inquiry-guided problem- or case-based learning principles.	These types of assignments are often more "authentic," in that they model the actual process scientists use in professional laboratories to solve problems. Students are pushed to use their own critical thinking skills and inductive reasoning to develop their own strategies for meeting the challenge, which helps to build relevance to lab activities for students. For more on inquiry-based projects, see Part 3 of this resource, and Part 2 of our "Strategies for Covering Content Series."
Design activities that develop transferrable skills.	Transferrable skills can include collaboration and group work, oral and written communication skills, organization and project planning, and more (Dunne & Ryan, 2010). By participating in activities designed to develop skills that can be transferred into future lab classes or into the workplace can help students understand the relevance of lab activities beyond the immediate concerns of your class.
Create opportunities for collaboration and teamwork between classmates.	Most scientific and technical projects today are cooperative. By creating collaborative activities, your students will not only gain the opportunity to learn from each other, but will also participate in a more genuine laboratory experience. However, it is important to also scaffold these group activities in ways that help your students develop collaborative skills. For example, you could have students practice working in pairs or small groups on simple tasks, then gradually build up the complexity of the collaborative assignments.

Consider equipment you want to expose your students to.	Ideally, students should be exposed to equipment, materials, and procedures they may need to use again in the future. Whichever equipment you use, make sure it is in working order prior to the lab.

Planning and facilitating an effective lab activity
Given that laboratory activities can often be complex, time-intensive learning tasks for students, it is important that each lab class session be designed to run smoothly. Here are a few suggestions on how to plan and facilitate an effective lab activity:

Strategies	Teaching Suggestions
Plan ahead.	Lab activities should be planned at least a week in advance if possible, and the professor and lab assistants or TAs should rehearse the procedure before the lab sections and review the results afterwards. Make sure that the requirements are feasible for students to complete in the amount of time allotted, and that the productive constraints (recommended ranges or limited quantities of materials to work with) chosen for the activity produce the desired results. Have a TA or lab assistant review the assignment sheet to ensure that the instructions are clear for students.
Make sure to train students in lab safety.	Whenever adapting or developing new labs, it is important to also go over safety and have a clear plan for the necessary safety training for students. It can be productive to include TAs in the brainstorming of hazards and safety concerns, since they bring such valuable experience in this area. The safety office for your department may also wish to be involved in reviewing the lab plans and approving the safety education materials that are planned for TAs and students. One way to train students in lab safety is to have your TAs spend some time discussing hazards and safety concerns before beginning any lab activities, followed by a pre-lab quiz to assess students' understanding.
Have students begin each lab by reviewing the previous week's material.	This can help students see how this lab activity fits into the bigger picture of the course, which can build relevance. For example, you could have students free write about what they remember from last week's lab, and then share responses in small groups. Or, you could create a short quiz on the material from the week before, for students to complete at the beginning of their lab section. These short, low-stakes assessments can also be used to encourage attendance or to assess students' understanding of safety instructions for the lab.
Have TAs go over the main objectives with students prior to starting the lab activity.	Having TAs explain and/or demonstrate the objectives, major procedures, and learning outcomes for the lab can help to ensure that the lab runs smoothly for everyone. Consider having your TAs write "Lab Tips" on the board that outline suggestions for completing the lab successfully, safety instructions, and typical pitfalls and mistakes students can run into. For consistency between sections, you can provide your own suggestions for lab tips and safety during TA meetings, then have your TAs use those suggestions to discuss and generate their own lists as a group. Also, during lab, have your TAs demonstrate new lab procedures, equipment, and handling for special materials for students.
Encourage TAs to take an active role in the lab.	Encourage TAs to play an active role in the lab by observing groups and checking in regularly with students. Students may feel uncomfortable asking questions, especially in the first few weeks of the term; therefore, suggest that TAs to avoid waiting for students to approach them, and encourage them to learn students names.
Leave time for review at the end of the lab.	Make sure to leave time to go over the expected results, and to review the activity as a class. This step helps ensure that students understood and learned from the activity, while also identifying students who may be struggling with laboratory or lecture concepts.

Adapted from: Nilson, 2010 & Stanford Teaching Commons, "Laboratory Teaching Guidelines." Includes contributions from Julia Chamberlain, UC Davis Department of Chemistry.

Additional Resources
For information on designing an effective lecture class to pair with your laboratory section, please refer to our series on "Activating Your Lecture."

Citation
Center for Educational Effectiveness [CEE]. (2018). Facilitating Laboratory Activities Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Dunne, J., & Ryan, B. (2010). Improving the undergraduate laboratory learning experience through redesigned teaching and assessment strategies integrating transferable skills and focusing on feedback. *Teaching Fellowships, 21,* 46-52. Retrieved from http://arrow.dit.ie/cgi/viewcontent.cgi?article=1017&context=fellow

Graham, M. J., Frederick, J., Byars-Winston, A., Hunter, A. B., & Handelsman, J. (2013). Increasing persistence of college students in STEM. *Science, 341*(6153), 1455-1456.

Hood-DeGrenier, J. K. (2015). A strategy for teaching undergraduates to write effective scientific results sections. *CourseSource.* Retrieved from https://doi.org/10.24918/cs.2016.13

Lantz, V. & Fairfield, A. (2016). *Re-envisioning Introductory Biology Labs: Progressive attainment of inquiry-based biology lab skills by biology students.* Retrieved from cms.montgomerycollege.edu/oit/oitdownloadasset.aspx?id=93322

Minner, D. D., Levy, A. J., & Century, J. (2010). Inquiry-based science instruction—what is it and does it matter? Results from a research synthesis years 1984 to 2002. *Journal of research in science teaching, 47*(4), 474-496.

Nilson, L. B. (2010). *Teaching at its best: A research-based resource for college instructors*. San Francisco, CA: Jossey-Bass.

Stanford Teaching Commons. (n.d.). *Laboratory Teaching Guidelines*. Retrieved from https://teachingcommons.stanford.edu/resources/teaching-resources/teaching-strategies/laboratory-teaching-guidelines

Facilitating Laboratory Activities Series

PART 2: Supporting Graduate Teaching Assistants in Lab Settings

TAs for laboratory section can range in terms of their experience with teaching and/or lab facilitation. Therefore, it is important to develop coherent instructions for lab activities for TAs, and to outline clear expectations for their behavior while facilitating lab sections. Additionally, you can help your TAs develop a culture of support by encouraging collaboration between graduate instructors. Below are a few suggestions for how to support your TAs:

Strategies	Teaching Suggestions
Encourage TAs to prepare in advance for facilitating each lab activity	Encourage your TAs to familiarize themselves with the laboratory manuals, assignments, and materials in advance of facilitating a lab activity, and suggest that they create a plan beforehand. This can help ensure that the laboratory session runs smoothly, and that both the students and TAs feel comfortable with the procedures and expectations of the lab activity.
Foster collaboration between TAs from different sections and	Provide a space (such as a discussion forum or an email list) for TAs to share materials, suggestions, and problem-solving strategies with each other, especially between sections of the same class. For example, if a TA in an early section noticed students had trouble with a particular task, they could send out a group email to you and the other TAs, so that students in the next sections can be better supported in that portion of the task.
Encourage more experienced TAs to help mentor those with less experience	Work with your more experienced TAs (including those who have TAed that class before, and those who have more experience teaching in general) to help mentor new or less experienced graduate instructors. This can help limit the amount of stress and anxiety new TAs experience, and can help ensure that each lab section runs as smoothly as possible.
Remind TAs that you're available to help if needed	Make sure your TAs know that you are available to answer questions or provide support if needed.

Adapted from: Stanford Teaching Commons, "Facilitating Labs" & the "TA's Guide to Effective Teaching at UC Davis," 2017

Additional Resources
CEE provides a variety of teaching development resources on campus for graduate instructors:

- CEE Workshops for Graduate Instructors
- Teaching Assistant Consultants
- Graduate Teaching Community
- TA's Guide to Effective Teaching at UC Davis

In addition to the TA Guide, both the Stanford Teaching Commons and the Center for Research on Learning and Teaching at the University of Michigan have articles aimed at graduate instructors on facilitating a lab section that could be helpful for your TAs.

Citation
Center for Educational Effectiveness [CEE]. (2018). Facilitating Laboratory Activities Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Center for Educational Effectiveness, UC Davis. (2018). *The TA's guide to effective teaching at UC Davis*. Retrieved from https://cee.ucdavis.edu/docs/2018/TAGUIDE_2018.pdf

Stanford Teaching Commons. (n.d.) *Facilitating labs*. Retrieved from https://teachingcommons.stanford.edu/grad-support/grad-teaching-development/facilitating-labs

Facilitating Laboratory Activities Series

PART 3: Implementing Inquiry-Based Learning in Lab Settings

Much of the research in the last few decades on inquiry- or problem-based learning in science and engineering education has been favorable (Ciocanel & Elahinia, 2008; French & Russell, 2002; Minner, Levy, & Century, 2010). By presenting students with a realistic problem or challenge that they must solve, inquiry-based projects allow students to be more involved in their own learning process, and helps them develop a more transferrable understanding of foundational concepts and theories (Nilson, 2010). In addition to the benefits for undergraduate students, research has shown that teaching inquiry-based laboratory activities can also help graduate students internalize important concepts (French & Russell, 2002). Below are a few suggestions on how to implement inquiry-based projects in your own laboratory sections:

Strategies	Teaching Suggestions
Consider the learning outcomes of your class	Consider how an inquiry-based project might help your students achieve the learning outcomes of your course. For example, if one of the goals of your course is to introduce students with a particular scientific process, an inquiry-based project could allow students to actively experience that process through an investigative task.
Consider the level of guidance you want to provide your students	According to Lantz & Fairfield, there are four main levels for guided-inquiry in laboratory classes: **controlled**, where students are given a problem, procedure, and outcome (i.e., traditional "cookbook" labs); **structured**, where students are given a problem and procedure, but not the outcome; **guided**, where students are given a problem, but not the procedure nor the outcome; and finally, **open**, where students determine their own problem, procedure, and outcome. It is important to note that each of the levels above demands increasing amount of preparation by TAs and instructors, as well as increasing support for students completing the task.
Include opportunities for collaboration	While laboratory activities are generally well-suited for group work between students, the increased conceptual demands of inquiry-based projects make collaboration an important aspect of these types of projects. Through group work, students learn how to effectively collaborate with colleagues in both lab activities and in the resulting writing/reporting tasks. An important consideration to make is whether you want to establish permanent groups or have students vary partners throughout the term.
Have students practice "authentic" science writing, rather than just reporting	While many students are familiar with the traditional the "lab report," the structured nature of this genre can make it difficult for students to learn how to compose in more the realistic science writing genres they may experience in the future. An example of an "authentic" science writing task could be learning to write an effective "results" section for an article on empirical research. Hood-DeGrenier (2015) provides a step-by-step explanation on how to teach students to write a results section: see her article here. Additionally, consider having your students practice peer review by exchanging written projects with colleagues from other groups.

Adapted from: Lantz & Fairfield, 2016 & Nilson, 2010

Additional Resources
Here are a few additional resources, including virtual labs, inquiry-guided labs, simulations, and problem scenarios:

- PhET Interactive Simulations Project
- The ChemCollective
- Biointeractive
- Virtual Courseware for Earth and Environmental Sciences
- Johns Hopkins University Virtual Laboratory

Citation
Center for Educational Effectiveness [CEE]. (2018). Facilitating Laboratory Activities Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Ciocanel, C., & Elahinia, M. (2008). *Teaching Engineering Laboratories Based On A Problem Solving Approach.* Paper presented at the annual conference of the American Society for Engineering Education Pacific Southwest, Flagstaff, AZ.

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Lantz, V. & Fairfield, A. (2016). *Re-envisioning Introductory Biology Labs: Progressive attainment of inquiry-based biology lab skills by biology students.* Retrieved from cms.montgomerycollege.edu/oit/oitdownloadasset.aspx?id=93322

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Global Learning Series

Significance and Strategies for the Classroom

What is Global Learning?

Global learning has roots in the *Shared Futures: Global Learning and Social Responsibility* initiative, which was launched by the Association of American Colleges and Universities (AAC&U) in 2001 to "enact global learning models that foreground questions of diversity, identity, citizenship, interconnection, and responsible action," and to engage not only students who study abroad, but also those who cannot or do not. (For more on global learning at UC Davis, see the Global Affairs site.)

UC Davis' Global Education for All, a Provost's initiative coordinated through Global Affairs, builds upon AAC&U activity and frames global learning as *the process of building key knowledge, skills, understandings, and networks that will help students collaborate effectively across cultural and geographic boundaries for the global good*.

Global Education for All was initially conceived and developed with broad campus engagement in response to a call for "Big Ideas" that could shape student experience at UC Davis; it builds upon the university's history of global engagement, teaching, and research about the US in transnational contexts, its commitment to just and inclusive impact on California and the world, and the rich diversity of our UC Davis community.

Active engagement with and by students is one of the notable components of global learning. According to Hilary Landorf, a leader in global learning and Executive Director, Office of Global Learning Initiatives at Florida International University, "Global learning was developed to produce new knowledge about the well-being of the global community, not to recapitulate old schema, beliefs, and biases" (Landorf et al., 31). Global learning recognizes that learners are empowered to create knowledge by viewing the world and the challenges that concern all of us not as mere problems but as opportunities to produce new knowledge. Consequently, creating new knowledge serves as a beacon of hope and an instrument of collaboration to address how we want to live on this planet together and how we behave towards others.

Why is Global Learning Important?

Global challenges, networks, and dynamics profoundly shape our lives. We need scholars, entrepreneurs, educators, artists, and employees who are ready to navigate across different cultural, political, and regulatory environments. And we need empathetic, curious leaders, caregivers, and community members who understand issues in cross-cultural contexts and collaborate to resolve them equitably. Global learning prepares UC Davis students to develop skills, knowledge, networks, and attitudes that will help them thrive in these roles.

UC Davis is not alone in recognizing that global learning is a critical dimension of higher education. The AAC&U Shared Futures initiative encourages purposeful global learning curricula that challenges students to reflect on "the interdependent but unequal world in which they live" and their sense of responsibility to "creatively and responsibly remedy its inequities and problems. " Landorf (2018) expands upon this by noting that one goal of global learning is "to produce and spread widely new knowledge and new solutions for complex global problems facing people and the planet" (p. 41) and that, in doing so, it also supports institutional efforts to integrate diversity, equity, and inclusion into curricula and pedagogy.

How Does Global Learning Take Place?

Global learning can take place through academic, co- and extra-curricular activity, as well as lived experience. It can take place on campus, but also in the broader community, virtually, and in other countries. Global learning is not fully achieved through a single experience, but rather developed through cumulative experiences over time, with opportunities for reflection and action.

At UC Davis, examples of global learning contexts include academic courses, study abroad and away programs, internships, externships, research, residential living and learning communities, student clubs and entrepreneurship, community-engaged learning programs, a Global Learning Conference, and more.

Many students come to UC Davis with relevant lived experience—for example having grown up in households profoundly affected by migration or other global forces. Harnessing these experiences or perspectives and fostering students' recognition of their unique ability to contribute to dialogue, learning, and discovery also facilitates global learning.

The Global Education for All global learning outcomes are a resource for those at UC Davis who seek to design and implement global learning opportunities.

What are Global Learning Outcomes?
Three global learning goals, adapted from the AAC&U *Global Learning VALUE Rubric* (2014) by a campus-wide steering committee, outline in broad strokes guidance for global learning. Appendix 1 provides the Global Learning Outcomes Matrix (from Global Affairs) and can be used as a planning tool for instruction. Described below, each goal – Global Awareness, Global Diversity, and Global Action – includes specific outcome examples:

Global Awareness: Students examine actions and relationships that influence global systems from multiple perspectives, analyzing how complex systems impact self and others.
• Evaluate complex and overlapping systems in a global context, including natural systems (e.g. environmental, biological, chemical, physical) and human systems (e.g. cultural, economic, political, legal, health, social, and technological).
• Analyze how systems are constructed, influenced and altered, identifying differential and inequitable consequences, and how this shapes people's lives around the world.
• Reflect upon interactions and interrelationships between our own experiences and natural and human systems in a global context.

Global Diversity: Students explore complex dimensions of diversity, equity, and inclusion around the world, including language, culture, and identity.
• Engage with differing perspectives and experiences while maintaining a sense of cultural perspective, including how culture informs our own beliefs and ways of thinking.
• Examine multiple and intersecting dimensions of cultural diversity (including, but not limited to, race, ethnicity, gender, nationality, religion, language, and class), discovering our own and others' cultures and histories, including experiences of privilege and oppression.
• Expand our ability to cross boundaries associated with language, culture, histories, and status in order to bridge differences, recognize similarities, and collaboratively and equitably reach common goals.

Global Action: Students create strategies to apply knowledge, skills, and abilities to collaboratively and equitably foster global well-being and resilience.
• Create strategies to identify biases, navigate power relations, and continuously monitor intended and unintended consequences when addressing complex global challenges.
• Apply knowledge, skills, and abilities to contribute to society at multiple levels - locally, regionally, nationally, and globally - demonstrating cultural humility and ethical, informed, and responsible actions.
• Explore personal, academic, and professional opportunities that address real-life global challenges through collaboration across intercultural and disciplinary contexts in ways that account for cultural diversity, social justice, and planetary sustainability.

Teaching Strategies
Once learning outcomes are established, instructional activities can be designed for both in and out of class learning environments.

In-class examples to integrate global learning:

- *Examine Issues*. Classes may incorporate globally focused or comparative perspectives to examine issues through a global lens. Course activities, projects, teams, online intercultural collaborations, and assignments may support engagement with global perspectives and/or action on global issues. Faculty may include content and speakers [and even co-instructors] that explore global diversity.
- *Transcend Boundaries*. Virtual learning experiences with a global focus can transcend place-based boundaries because it allows connection with peers around the world through technology or participation in international internship experiences without leaving home.
- *Value Life Experiences*. Recognize that life experiences such as immigration/migration, growing up speaking multiple languages, and helping family members navigate across cultural boundaries support global learning.

Outside of class activities to integrate global learning:

- *Participate in Campus Events*. Outside of classrooms,-consider encouraging your students to tap into campus events with a global focus, to engage your students in your research on global topics, to participate in globally themed student communities or clubs, to take a workshop on global/intercultural leadership or to conduct archival research around the world, to experience living with culturally diverse peers or in globally focused living and learning communities, and more.
- *Explore Communities*. Global learning experiences may take students into regional communities to learn about an unfamiliar culture, work, or intern with businesses with a global footprint, and/or participate in community-engaged service learning to address global challenges.
- *Travel for Study*. Encourage your students to consider travel for domestic study away or programs in other countries including study abroad, service learning, international research or fieldwork, or community and internship programs.

Assessment Strategies
Assessment of global learning, using whichever global learning objective(s) you address in your course, can also take many forms. Reflective journals, team-based projects, discussions, international internships or fieldwork, even standard assessments such as exams and term papers can incorporate global learning if you keep a few things in mind:

- *Be intentional*. Integrate global learning into your goals and assessments, not as an add-on. Make sure that the global learning element of your course is visible to and actionable by the students-- that is, make sure that both the global learning and the disciplinary aspects of the assessment are visible.
- *Be inclusive*. Global learning is predicated on understanding and respecting differences. As you build assessments, incorporate different points of view or perspectives.
- *Be reflective* and encourage students to be reflective. Deliberate reflection helps students increase their global learning.
- *Be collaborative*. Global learning often focuses on wicked problems-- challenges that span disciplines and geographic areas and are best solved by working together. Finding ways for students to engage across places and disciplines is one useful way to approach the global learning outcomes.
- *Be simple*. Building a global learning objective in your course should be direct, clear, and measurable. Bloom's taxonomy and the UC Davis Global Learning Outcomes Matrix (Appendix 1) are invaluable tools for this.

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Aliki Dragona (PhD, Faculty Director of Academic Programs at Global Learning Hub in Global Affairs) and Elizabeth Langridge-Noti (PhD, Director of Faculty Engagement in Global Affairs) developed this resource.

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Additional Resources

- For more on Global Teaching and Learning Resources from Global Affairs at UC Davis, visit this page.
- For more on Global Learning Goals and Outcomes from Global Affairs at UC Davis, visit this page.
- For a Subject Guide on Global Learning from Shields Library at UC Davis, visit this page.
- For the Global Learning VALUE Rubric from the Association of American Colleges and Universities, visit this page.

Additional Reading: A Global Learning Bibliography

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Global Learning Assessment Matrix
Faculty Name:
Course:
Department: Quarter &Year Assessed:

UC Davis Global Learning Goal	Assessment Method	Assessment Results
Choose from: ***Global Awareness:*** Students examine actions and relationships that influence global systems from multiple perspectives, analyzing how complex systems impact self and others. **Course Global Learning Outcome** Students will be able to demonstrate an understanding of globalization and the interrelatedness of … See also: https://globalaffairs.ucdavis.edu/ge4a/global-learning-outcomes	Assessment Activity/Artifact: Current events journal Evaluation Process: Rubric scoring 1-5 Minimum Criteria for Success: A score of 3 or higher in the rubric	*To be entered at end of course*

The GL Goal column does not change.

Assessment Activity/Artifact: Describe what students will do to demonstrate achievement of goal/outcome. More than one method can be used.

Evaluation Process: Describe method for evaluating quality of assessment artifacts.

Faculty write the course-specific GLO that addresses the GL Goals above.

Minimum Criteria for Success: Describe the minimum level of achievement necessary to demonstrate adequate progress toward.

Use of Results for Improving Student Learning
To be entered at end of course

PLEASE REPEAT PROCESS MODELLED ON THIS PAGE FORTHE REST OF THE GLOBAL LEARNING GOALS ON THE FOLLOWING TWO PAGES.

<table>
<tr><th>UC Davis Global Learning Goal</th><th>Assessment Method</th><th>Assessment Results</th></tr>
<tr><td>Choose from:

Global Diversity: Students explore complex dimensions of diversity, equity, and inclusion around the world, including language, culture, and identity.</td><td rowspan="3">Assessment Activity/Artifact:

Evaluation Process:

Minimum Criteria for Success:</td><td rowspan="3">To be entered at end of course</td></tr>
<tr><td>Course Global Learning Outcome</td></tr>
<tr><td>[Students will be able to …]

See also:
https://globalaffairs.ucdavis.edu/ge4a/global-learning-outcomes</td></tr>
<tr><td colspan="3">Use of Results for Improving Student Learning</td></tr>
<tr><td colspan="3">To be entered at end of course</td></tr>
</table>

UC Davis Global Learning Goal	Assessment Method	Assessment Results
Choose from: ***Global Action:*** Students create strategies to apply knowledge, skills, and abilities to collaboratively and equitably foster global well-being and resilience.	Assessment Activity/Artifact:	*To be entered at end of course*
Course Global Learning Outcome [Students will be able to …] See also: https://globalaffairs.ucdavis.edu/ge4a/global-learning-outcomes	Evaluation Process: Minimum Criteria for Success:	
Use of Results for Improving Student Learning		
To be entered at end of course		

Library Anxiety

Promoting an Effective & Inclusive Learning Environment for Students

What is Library Anxiety?

Library anxiety is a widespread phenomenon that has its roots in a lack of training and resources in the public education system. It impacts vulnerable students and inhibits them from learning to use library resources to find the information they need. Library anxiety was first identified and named in 1986. It consists of students being fearful, anxious and intimidated when they need to use the library for a research project, due to the size of the library, not knowing where things are located or how to begin, and being reluctant to ask for help because they assume they should already know (Kuhlthau, 1991; Mellon, 1986).

Library anxiety can impact student success because students may avoid the library and develop poor study habits, such as not attending or learning from library classes or being unable to perform library-related research tasks (Carlile, 2007). Another study finds that library anxiety reduces quality research output in cooperative and collaborative projects (Jiao et al., 2008). Library anxiety also impacts specific populations, including first year students (Jameson et al., 2019; Soria et al., 2015, 2017); first-generation, non-white and lower income students (Black, 2016; Jiao et al., 2004, 2006; Jiao & Onwuegbuzie, 1997; Soria et al., 2015); and English as second language (ESL) student populations (Anwar et al., 2004; Carlile, 2007; Wildemuth, 2017).

One possible source of library anxiety is the lack of exposure to libraries in the public school system. Data on California school libraries indicates that 16% of schools don't have libraries at all; only 9% of schools have a credentialed teacher librarian part-time or more; and the ratio of students to librarians is 1:7000+. As indirect evidence of insufficiency, California public school libraries rely on fundraising for 50% of their budgets (California Department of Education, 2019). The bulk of UC Davis students, coming from California, are not exposed to libraries or librarians and are not familiar with the resources we offer.

The extent of library anxiety across undergraduates is alarming. Seventy-five percent express some degree of library anxiety (Abusin & Zainab, 2010; Mellon, 1986). Eighty percent of student responses about libraries were coded with language of fear and anxiety (Mellon 1986). Library anxiety is also correlated with feelings of shame (McAfee, 2018) and deficient library skills:

- 47.8% of undergraduates don't know where to begin their search
- 62.5% of undergraduates feel uncomfortable searching for information
- 67% were averse to doing any research (Blundell & Lambert, 2014)

Library anxiety can be exacerbated by assumptions faculty have about how undergraduate students approach information research(Leckie, 1996), misperceptions students have about the nature of research (Hinchliffe et al., 2018) and how research-based writing assignments are designed (Head & Eisenberg, 2010).

Faculty Assumptions about Undergraduate Students and Information Research

Faculty and undergraduates rely on different information research strategies. Faculty experts have a deep understanding of the scholarship and discourse conventions within their discipline. They can leverage citation tracking strategies and professional networks to uncover information. Undergraduates, on the other hand, are novices just beginning their disciplinary exploration. Their exposure to a field may be limited to a single course so their understanding of the information landscape is limited. Their strategy is more about coping with the demands of an assignment rather than developing an approach to information seeking (Leckie, 1996).

Student Misperceptions of Information Research

Mellon (1986) explains, "when confronted with the need to gather information in the library for their first research paper many students become so anxious that they are unable to approach the problem

logically or effectively". Students may also assume that other students understand how to use the library and their lack of knowledge is unique to them. This assumption can exacerbate feelings of inadequacy and make students reluctant to ask questions for fear of appearing ignorant (Mellon, 1986).

A study by Hinchliffe, Rand & Collier (2018) identified common misconceptions that first year students have about information research and possible learning outcomes to address these misconceptions some of which are described below.

- They believe they are supposed to do research without assistance
- They perceive the library as only a place to get a book or to study
- They think Google is a sufficient search tool
- They believe that research is a linear, uni-directional process, and every question has a single answer

Design of Research Assignments
Students rely on written instructions to inform their approach to research assignments. However, while the instructions typically include parameters for acceptable topics and formatting guidelines, they often lack details about how to begin exploring a topic or develop a search strategy (Head & Eisenberg, 2010). You can alleviate library anxiety and support student learning by providing explicit guidance about how to navigate these common areas of confusion for students.

Areas of Student Confusion and Anxiety	Assignment Instructions
How to choose a topic and generate research questions (Fister, 1992; Kuhlthau, 1991).	Include a list of recommended readings to give students starting points for topics and questions.
Which types of information you expect students to find, evaluate and use (Head & Eisenberg, 2010).	Explain what you mean by *scholarly/academic* and *primary/secondary* – definitions can vary between disciplines!
Where to search for scholarly sources (Leckie, 1996; Hinchliffe et al., 2018).	- List core information search tools in your discipline by name. - Link to pertinent library Subject Guides. - Encourage students to talk to a librarian and provide contact details for the library's research consult desk.
The big picture; a process for approaching research and writing (Leckie, 1996; Hinchliffe et al., 2018).	Divide your assignment into segments with pieces due by specific dates, e.g. - generate guiding research question(s). - search for sources and create an annotated bibliography. - submit research assignment.

Key Teaching Strategies to Address Library Anxiety

- **Acknowledge** library anxiety and **encourage** your students to get help from library staff (Anwar et al., 2004; Black, 2016). Bring your students to the library.
- **Incorporate** relevant library subject and course guides into your research assignment prompts and your Canvas course to help your students do information research more effectively. Our guides are designed to point students to the best library resources for a specific discipline, course or assignment. Research suggests that embedding library guides designed for a specific course increases the discoverability of library resources (Lee et al., 2017).
- **Consult** with a librarian to see how we can help your students develop their information search skills and learn about library resources.

    - Discuss your assignment goals with a librarian so we can recommend possible student learning outcomes and tailor instructional strategies to fit the specific needs of your class (Carlile, 2007; Goebel Brown et al., 2004; Karim & Ansari, 2013; Parks, 2019; Van Scoyoc, 2003; Wildemuth, 2017).
    - Request library instruction that will help your students learn to use library resources. We can schedule an instruction or orientation session for your class particularly for first year students (Carlile, 2007; Erfanmanesh, 2011; Goebel Brown et al., 2004; Karim & Ansari, 2013; Parks, 2019; Van Scoyoc, 2003; Wildemuth, 2017).
- **Be explicit** with students about your expectations for research assignments. For example, what does the design of your research assignment communicate to students?
    - Consider the design of your writing assignments; break a research paper assignment down into discrete steps with short assignments that must be completed by specified dates
    - Make the research process more transparent for students (Leckie, 1996), e.g. curate course/background sources to help students identify topics and generate potential research questions; have students document/share search strategies and submit annotated bibliographies.
    - Create collaborative research assignments so students can encourage each other while using library resources (Abusin & Zainab, 2010).

Additional Resources
Find the latest articles in these databases:

- Psycinfo (Psychology database)
- Eric (Education database)
- LISTA (Library database)
- Education Source (Education database)

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Reflection and Metacognition Series

PART 1: Reflecting on Teaching Practice

"Make time for reflection." It sounds simple enough, but how often do we stop to make time for reflection on teaching practices? Many instructors do it automatically while in the midst of teaching; however, transforming potentially-passing thoughts into concrete plans for change requires further intention. And if reflection is important for instructors, might it also be important for students? Schraw, Crippin, and Hartley (2006) found that engaging in reflection helped increase students' critical thinking ability.

This series on Reflection and Metacognition looks at the implications for both instructors (part 1) and students (part 2). We begin with discussing the merits of engaging in reflecting about teaching.

What is reflective practice?
Since the beginning of the 20th century, scholars such as John Dewey, acknowledged reflection as an important element of effective teaching; it was from that continuing conversation that the term "reflective practitioner" emerged (Schon, 1987). Generally, a reflective practitioner is someone who actively engages in thinking about teaching with the express intent that reflections about those experiences inform future practice. More recent scholarship suggests that "...reflection [is] a process in which a person tries to make sense of something while acting on it at the same time" (Bishop-Clarke & Dietz-Uhler, 2012). As instructors, we reflect when we think about what we are doing, are willing to learn, and are open to change.

What are the benefits of reflection?
Reflective practice is central to articulating student outcomes, considering new pedagogical perspectives, and engaging learners in a number of learning environments (in-person, hybrid, online). Reflection offers a chance to (re)explore our beliefs about learning and our teaching, many of which have become so deeply-seeded as to become "automatic."

Brookfield (2017) suggests there are a number of reasons reflection on teaching can benefit educators, such as: developing a rationale for practice, taking informed actions, keeping instructors engaged in the teaching process, and establishing trust with students. With regard to trust, Brookfield posits that intentionally disclosing the pedagogical decisions you have made during the design of the course/lesson/unit is an opportunity to build trust with students and show them that your plans are made to benefit their learning. In other words: A reflective instructor is more able to communicate the "how" and "why" of course design and delivery to students.

What is the process of reflection?
The process is one in which we challenge our assumptions through reflection. According to Brookfield, "Critically reflective teaching happens when we build into our practice the habit of constantly trying to identify, and check, the assumptions that inform our actions as teachers (p. 5)." Brookfield further describes four lenses through which we might introspectively examine our teaching: through the eyes of our students, through our colleagues' perceptions, through our personal experiences, and through theory and research.

Considering ourselves through the lens of our students, increases our awareness in the ways we interact with our students. This may help us interrogate the common assumptions we have, predicated on our own learning, that may or may not be true for our student learners. This lens may inform how we see the disparity between our intentions and actual perceptions. Hearing and integrating this type of feedback can only increase our impact on learning. As but one example of a tangible way to reflect on our practice through the lens of students, Brookfield advocates for use of a Critical Incident Questionnaire (CIQ) as a tool. He argues that it can be quick to implement and particularly insightful. Since these questions ask students to reflect on their own learning, it also can serve as a reflective tool for our students. (For more details of the CIQ, see part 2 in this series.)

Additionally, opening ourselves to our colleagues' interpretations may also shed new light on our practice. Engaging in open discussions with colleagues who share many of the same professional experiences can add nuance to our way of thinking, while also providing us with credible alternate perspectives. Considering our own experiences as learners (i.e., what makes us engage when in learning contexts, what motivates us to participate, what makes for effective group interaction) might also inform ways to change practice in order to increase student engagement in our own classes. Finally, existing research and literature on learning and teaching may illuminate our experiences or catalyze fresh new ideas. Taken together, and when examining our practice consistently and with a regularity, we engage in critical reflection.

Why reflect on paper?
Writing by hand has been demonstrated to stimulate the brain differently than writing on the keyboard. Researchers contend that transforming the spoken word into the written word activates cognitive processes that lead to learning and change. Mueller & Openheimer (2014) found that college students who hand wrote notes (rather than typing on a laptop) performed better on tests of conceptual knowledge.

How do I get started?
There are both formal and informal processes on the continuum of reflective practice. You could simply start by thinking of responses to the following questions:

- What worked well in my instruction? Who will I share this news with?
- What needs work? Who can help me think through this?
- What will I do differently? How will I know it is working?

For a more structured approach, scholars suggest a three-phased reflective process: Pre-planning, Planning, and Post-Planning (detailed below).

Phase	Description	Points of Reflection
Pre-planning	Thinking about previous experiences that inform the current teaching goal(s) (successes, lessons learned).	What assumptions or dispositions do you have about your class? What do you want learning to look like in your classroom?
Planning	Transforming thinking into action by designing (in some cases pilot testing) and implementing a teaching plan.	What strategies will help you accomplish this vision? What data will you gather to determine the effectiveness of your planning?
Post-planning	Reviewing the plans and the data you have to understand the effectiveness of your planning and to inform future plans.	What ideas, patterns, themes emerged from your data? What would you like to do differently next time?

While these are accessible and informal points of entry, the most systematized and formal process of reflection leads to the Scholarship of Teaching and Learning (SoTL). More specifically, SoTL is a structured and formal process of reflecting that entails questioning, hypothesizing, collecting empirical data, analyzing, and reporting (Bishop-Clark & Dietz-Uhler, 2012).

There are other ways to conceptualize reflection. Appendix 1 provides more examples to further reflect on your teaching at different stages of the instructional process.

Extend reflective practice to other areas of professional practice?
While reflecting on our teaching is the focus of this part, as professionals, we are not limited to reflecting on teaching alone. The practice of reflection can be extended to other areas of our professional lives. Although embedded in our research, we may already have informal systems for reflecting about our reading and our writing. What about reflecting on our mentoring: How do I ask clarifying questions of my mentee? Consult with them? Collaborate with them? Coach them? How do I strike a balance amongst

these behaviors? When attending talks, lectures, or conferences: What did I observe that particularly engaged me intellectually or emotionally? How do I reproduce both types of behaviors in my own class? Reflecting on all dimensions of our professional lives can contribute to deeper introspection and integration, thus improving outcomes and holistic well-being.

Additional Readings & Resources

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Reflection and Metacognition Series

APPENDIX 1: Reflecting on Teaching Practice

Your overall instructional program is comprised of planning instruction, delivering instruction, and assessing learning. This table provides reflective prompts that are framed this way.

Planning Instruction	Delivering Instruction	Assessing Learning
What sort of bias or preconceptions do you anticipate bringing into your classroom? How could you work to overcome the challenges brought out by these biases/preconceptions? Have you felt misrepresented/judged by your students? Have you ever thought about an instructor in a way that turned out to be wrong? How do you engage students in class by connecting to their prior experiences? To their interests? To other classes? To learning from earlier in your class? How do you integrate scholarly work from underrepresented groups and perspectives into your class?	In what ways do you create a safe space in your classroom, where ethnic, racial, cultural, religious, and gender differences are respected? How does your instruction align with what you want your students to learn? How much of your instruction focuses on content? How much on the process of learning? What are some ways you can supplement more of what is lacking? How do you maximize the use of your discussion sections? How are they aligned with the instructional program of your lectures?	What kind of learning are you trying to measure with your assessments? Do your assessments effectively measure what you intend? How do you know this? How do you ensure that students understand your expectations for assignments? How do you work to ensure that there is consistency from one TA to another in graded assignments? How do you integrate results and patterns from graded assessments into your current instruction? In other words, how do you use assessment data to inform instruction so that you close student gaps in understanding?

Reflection and Metacognition Series

PART 2: Activities to Promote Reflection for Students

What is metacognition?
Simply put, metacognition is "thinking about thinking." Complex and multi-dimensional, scholars posit that metacognition is comprised of two main components: the knowledge and regulation of cognition (Metgzer et al., 2018; Schraw et al., 2006). Having awareness of how one learns, one's strengths and deficits, and the benefits of situational learning strategies contribute to "knowledge" about cognition. While regulation of cognition consists of actively engaging in one's own learning process through planning, monitoring, reflecting, and strategizing (Metzger et al, 2018; Schraw & Dennison, 1994; Tanner, 2012). This is a type of intentional learning that interacts with active inquiry, whereby students both reflect on and direct their learning (National Research Council, 2000).

Why does metacognition matter?
Research has identified student metacognition as a significant mechanism for producing positive learning outcomes (Millis, 2016; Wang et al., 1990). As Ambrose et al. assert (2010), self-directed learners can evaluate their knowledge and skill in the context of a learning task, prescribe a path to accomplish it, and monitor and adjust as needed along the way.

Indeed, undergraduate courses more traditionally focus on disciplinary content exclusively, instead of incorporating the practice of metacognitive skills into culture, instruction, or activities. Still, scholars find that embedding these pedagogical skills within instructional practice that connects disciplinary learning to metacognitive practice produces more proficient content-area learning (Metgzer et al., 2018; Kuiper & Pesut, 2004).

How to integrate student metacognition into practice
Metacognition, both language and habit, can become normative discourse in the classroom (Tanner, 2012; Pintrich 2002). Talking both *about* the strategies and *when* to apply them can demonstrate the value you place on these processes. When instructors give students permission to "be confused" and create a classroom culture where students can seek this missing clarity, student comfort level and willingness to trust the learning process increases (Tanner, 2012). Perhaps most importantly, students need not only *hear* instructors' explanations of the strategies, but they must *observe* them in practice, by either instructor or other students (Nilson, 2013). Metacognitive modeling by the instructor relies on their own self-reflective thinking. Instructors can explicitly show students how they (as experts) think procedurally (Tanner, 2012), whether it be solving a problem, engaging in reading of text, or organizing and studying for an exam. These concrete examples illuminate for students not only *what* is important to think about, but also *how* those with more experience do so. Finally, once students have observed, as with any new learning, they need opportunities to practice the metacognition and to receive meaningful feedback (Millis, 2016).

Next, embedding questions within regularly graded course material can help students see both the value and impact of "thinking about their thinking." Adapted from Tanner (2012), the series of tables below, organized along two dimensions, include sample questions that promote student metacognition. First, questions within each table correspond to the timing of the question: Before Implementation, During Implementation, or After Implementation.

Second, the tables include:

- questions that can be asked regarding individual Class Sessions (table 1),
- Active Learning Tasks or Homework (table 2),
- Quizzes or Exams (table 3),
- Overall Course (table 4).

Table 1: *Class Sessions*

Before	During	After
What are the goals of the class session going to be? What do you already know about this topic? How could you best prepare for the class session? Where should you sit and what should you be doing (or not doing) to best support your learning during class? What questions do you already have about this topic that you want to find out more about?	What insights are you having as you experience this class session? What confusions? What questions are arising for you during the class session? Are you writing them down somewhere? Do you find this interesting? Why or why not? How could you make this material personally relevant? Can you distinguish important information from details? If not, how will you figure this out?	What was today's class session about? What did you hear today that is in conflict with your prior understanding? How did the ideas of today's class session relate to previous class sessions? What did you find most interesting about class today?

Table 2: *Active-learning task and/or Homework*

Before	During	After
What is the instructor's goal in having you do this task? What are all the things you need to do to successfully accomplish this task? What resources do you need to complete the task? How will you make sure you have them? How much time do you need to complete the task? If you have done something like this before, how could you do a better job this time?	What strategies are you using that are working well or not working well to help you learn? What other resources could you be using to complete this task? What action should you take to get these? What is most challenging for you about this task? Most confusing? What could you do differently mid-assignment to address these challenges and confusions?	To what extent did you successfully accomplish the goals of the task? To what extent did you use resources available to you? If you were the instructor, what would you identify as strengths of your work and flaws in your work? When you do an assignment or task like this again, what do you want to remember to do differently? What worked well for you that you should use next time?

Table 3: *Quiz or Exam*

Before	During	After
What strategies will you use to study (e.g., study groups, problem sets, evaluating text figures, challenging myself with practice quizzes, and/or going to office hours and review sessions)? How much time do you plan on studying? Over what period of time and for how long each time you sit down do you need to study?	To what extent are you being systematic in studying all the material for the exam? To what extent are you taking advantage of all the learning supports available to you? Are you struggling with your motivation to study? If so, do you remember why you are taking this course?	What about your exam preparation worked well that you should remember to do next time? What did not work so well that you should not do next time or that you should change? What questions did you not answer correctly? Why? How did your answer compare with the

Which aspects of the course material should you spend more or less time on, based on your current understanding?	Which of your confusions have you clarified? How were you able to get them clarified? Which confusions remain and how are you going to get them clarified?	suggested correct answer? What questions did you not answer correctly? Why? What confusions do you have that you still need to clarify?

Table 4: *Overall Course*

Before	During	After
Why is it important to learn the material in this course? How does success in this course relate to your career goals? How are you going to actively monitor your learning in this course? What do you most want to learn in this course? What do you want to be able to do by the end of this course?	In what ways is the teaching in this course supportive of your learning? How could you maximize this? In what ways is the teaching in this course not supportive of your learning? How could you compensate for or change this? How interested are you in this course? How confident are you in your learning? What could you do to increase your interest and confidence?	What will you still remember 5 years from now that you learned in this course? What advice would you give a friend about how to learn the most in this course? If you were to teach this course, how would you change it? What have you learned about how you learn in this course that you could use in my future courses? In your career?

Beyond the questioning to promote metacognition, another effective way to incorporate is to implement activities and/or assignments explicitly geared toward metacognition. Part 3 of this series describes many concrete examples, ranging from those which can be accomplished in minutes to more comprehensive and sustained routines.

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Reflection and Metacognition Series

PART 3: Activities to Promote Reflection for Students

Just as instructors can reflect on teaching practice, students can also grow from reflecting on their learning. The more that students know about their own learning, the better they are able to match learning strategies to contexts, and the more they are able to regulate it for success. Instructors can also systematically integrate metacognitive exercise into already established instructional activities and assessments, as opposed to prompting students with isolated or scattered questions for reflection.

This part describes some tangible and engaging examples of integrated reflection to promote student learning.

- For routinized *quick* reflection in commonly used activities, or as described by Millis (2016), "action-oriented opportunities," see Tables 1a – 1c
- For more *complex* sustained models that can be maximized as structured, routinized, integrated, and institutionalized regular parts of the course, opportunities for reflection:
    - Before teaching a unit (Table 2)
    - While teaching a unit (Table 3)
    - After teaching a unit (Table 4)

It is worth remembering that reflective exercise is like any other; the more it is practiced, the stronger the students' metacognition becomes and the greater the benefits, to not only their learning, but also to instructors' practice.

Quick Activities

Table 1a: *The Minute Paper*

What is it?	What are some sample prompts?
This is a brief reflective activity to be used in the concluding minutes of class. Instructors give students 2-3 minutes to write on an index card their responses to the posted prompt/s. This guides students in reflecting on their understanding of a finite amount of material, such as a single lecture or class (Millis, 2016; Tanner, 2013).	What was the most important thing you learned during this session? What important questions remain unanswered? How did what you learned today apply to lab/section?

Table 1b: *The Muddiest Point*

What is it?	What are some sample prompts?
Instructors use this at the closing of class (2-3 minutes). Asking students to reflect on the day's class not only engages them in their own metacognition, but also establishes a tone that confusion is a part of learning. Also, this aggregated feedback from students can help the instructor plan their next class session with the explicit goal of clearing up the confusion or can be shared with TA's to integrate into their planning for discussion sections or labs (Tanner, 2012).	What was most confusing to you about the material we explored in class today? What was one point today that is not clear to you?

Table 1c: *Support a Statement*

What is it?	What are some sample prompts?
Instructors provide students with a general statement from lectures, readings, or informed experts. They then ask students to justify support,	Who makes these claims? Are they a credible source? Why or why not?

rather than just citing it. This simple adaptation requires students to think at a different level, reflecting on what they either do or do not know (Millis, 2016).	What evidence is (or arguments are) used to support these claims?

More Complex Activities

Table 2: *Before Teaching a Unit*

What is it?	What are some sample prompts?
Knowledge Surveys Instructors use these before beginning the unit as a metacognitive instrument for students. Instead of an actual pre-test of content knowledge, they gauge students' perceptions of their knowledge of topics without having to "prove" it. Students reflect on their confidence in their ability to answer given questions or perform skills (Millis, 2016). (Additionally, the same survey can be given at multiple points in the class and/or the end to measure what students learned or what skills they acquired.)	Provide students with a series of 3 responses and prompt them to mark one for each substantive question/problem. • Mark 1 if you are fairly certain you can answer question or perform skill indicated. • Mark 2 if you know at least 50% of the answer or if you know exactly where to find the information to answer it. • Mark 3 if you don't know how to answer the question or perform the skill.

Table 3: *While Teaching a Unit*

What is it?	What are some sample prompts?
Clickers (Personal Response Systems) These have become increasingly prevalent in classes to check for student understanding. Instructors pose questions, usually with multiple-choice options. Students are given a few moments to think and arrive at their answers or to solve a problem. Instructors are able to assess how well students demonstrate an understanding. This type of learning activity can also be combined with pair or group discussion. Once students have reflected and answered independently, instructors can direct them discuss the same questions in groups and to once again respond to the question after collaboration. Research has shown that the peer interactions are the mechanism for learning and metacognition. To see a demonstration of this type of activity in a live classroom, watch this brief clip of Harvard professor, Eric Mazur, leverage the impact of clickers (Millis, 2016).	Share how you thought about what the question was asking. Share the process you used to arrive at an answer you wanted to choose. What was your main reason for choosing your answer, and what were the main reasons you did not choose the others? How did your ideas compare with your neighbor's ideas? What was most confusing to you about this question? How confident are you in your answer? Why? What else would you need to know to increase your confidence?
Learning Log/Reflective Journal This can be a more formal way for students to reflect and can be integrated into other activities such as active learning tasks, homework assignments, or exam preparation. With regular reflecting and writing about their learning, students are better able to see patterns and to diagnose their own strengths and weaknesses. Instructors can then coach them in prescribing solutions and monitoring their own learning. This helps students to take responsibility and to become independent and self-directed. This strategy for requiring metacognition is appropriate across levels and within varied contexts of disciplines (Tanner, 2012; Barkley, 2010; Weimer, 2002).	**Applied to Active Learning Tasks or Homework Assignments** Pose three questions that you had about the concepts you explored in your assignment that you still cannot answer. What enabled you to learn the most in this assignment? How was the way you approached completing this assignment different compared with the last time we had an assignment like this? What advice would you give yourself based on what you know now if you were starting this assignment all over again?

	Applied to Preparation for Exam or Quiz How do you plan on preparing for the upcoming exam? Why? What resources are available to support you? How will you make sure to use these? How does your strategy for exam preparation compare with at least three colleagues in your lab section? (go ask) What concepts have been most clear? What concepts have you found most confusing so far? Given that, how should you spend your study time in preparing for the exam? Based on your performance on the last exam, write a letter to yourself with advice about preparing for the upcoming exam.

Table 4: *After Teaching a Unit*

What is it?	What are some sample prompts?
Critical Incident Questionnaire (CIQ) This metacognitive tool, administered in regular intervals, asks students to respond to the same five questions pertaining to critical moments or actions in learning. Patterns and trends emerge from results and can be addressed either explicitly or implicitly by the instructor. CIQs can be kept anonymous, if desired. Through implementation of CIQs, students become more aware and are encouraged to take a more active role in influencing class climate for their own learning. Collecting data on class environment helps instructors to understand their students' learning processes and adjust to maximize learning (Barkley, 2010; Metzger et al., 2018; Brookfield, 2005; Weimer, 2002).	At what moment in class or while doing your homework this week were you most engaged as a learner? At what moment were you most distracted as a learner? What action did anyone in class take this week that you found most affirming or helpful? What action did anyone take this week that you found most puzzling or confusing? What surprised you most about class this week?
SMASH Inventory paired with Exam Wrappers/Post-test Analysis *Part 1:* This two-step process begins once students complete an exam, but before they submit it. Instructors ask students to reflect and provide written analysis around a series of questions about their study strategies and effort. Metzger et al. (2018) designed a variation of this method by creating a 25-item instrument (SMASH Inventory Instrument) that more formally guides students to consistently practice self-reflection in conjunction with performance.	Predict your exam score. What supports this prediction? Rate your effort in studying for the exam on a scale of 1 (lowest) to 10 (highest). List the specific learning strategies you used to study for the exam (e.g., used flash cards to memorize definitions, rewrote/reviewed lecture notes, created outlines from readings, etc.). Identify what you found easiest and most difficult about the exam and why. Adapted from SMASH Inventory Instrument: • The concepts on this assessment were difficult for you. (reflective thinking) • The concepts in this course have been difficult for you. (reflective thinking) • You use different study strategies for concepts that you find to be more difficult. (reflective

- *Part 2:* Once exams are graded and returned, students are then asked to write about their emotional response, compare results to predictions, and engage in test item-analysis. Some refer to this as a post-assessment Writing, Reflection, and Planning (WRaP). Taken together, these become a metacognitive mechanism for both students and instructors to gain insight into the learning process. This can illuminate associations between preparation and results. It may also help students to see disparities between their perception and actual performance. Instructors might use results as a mechanism for early identification of gaps in understanding and intervention. (Barkley, 2010; Metzger et al., 2018; Millis, 2016; Weimer, 2002)	thinking) • The strategies that you used to prepare for this exam worked well, and you will use them again next time. (systematic study habits) • You are confident in your ability to learn this material. (meta-emotional) - Did you earn the score you hoped on this exam? Explain. Do you plan to adjust your study habits based on this? If yes, how? Review the items you answered incorrectly. Do you notice any patterns in what you missed? Explain. Make corrections to the missed items. Provide the correct answer, explain why this is correct, and indicate the source for the correct information (e.g., readings, lectures, assignments). Please provide feedback on how I can help you prepare better next time. How can your peers help you prepare?

Citation

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Strategies for Teaching International Students Series

PART 1: Promoting Academic Success for International Students

More and more international students from across the globe are coming to the US, attracted by the high-quality education offered at many US universities (Turner, 2015). In the 2016-2017 academic year, about 14% of the total enrollment at UC Davis were international students (Budget and Institutional Analysis, 2017), with the university accepting over 60% of its international applicants for 2017-2018 (UC Institutional Research and Academic Planning, 2017). International students contribute greatly to the diversity of our campus' population and enrich our classroom environments with their unique perspectives. They contribute to the academic excellence of our institution and bring a wealth of unique and diverse knowledge and experience that are valuable in the classroom (Wu, Garza, & Guzman, 2015). By valuing and encouraging their contributions, instructors can play an important role in supporting international students in their classroom communities. This resource series will offer a number of specific strategies and suggestions for supporting international students in the classroom.

Communicative, linguistic, and academic challenges international students may face
International students face a variety of challenges as learners in the US, including difficulties adjusting to a new culture and campus life (Wu, Garza, & Guzman, 2015), social isolation (Gareis, 2012; Wu, Garza, & Guzman, 2015), and stress learning complex topics in another language. Additionally, according to Dawn Takaoglu, director of International and Academic English at UC Davis, international students who first attend a 2-year community college before transferring to a 4-year university experience a variety of challenges that differ uniquely from their peers who followed a more traditional path (personal communication, 2017). Here are a few common challenges international students face, as well as suggestions for how to support these students in the classroom:

Challenges	Explanations	Teaching Suggestions
May be proficient in some modalities of English, but not others.	Multilingual students may differ in their proficiencies with English, or with certain modalities of English (i.e., writing, reading, listening, or speaking). For more on this, please see our series on "Strategies for Teaching Multilingual Learners."	Employ a variety of modes when lecturing, and when designing activities. For example, Freedman (n.d.) notes that all students, not just multilingual ones, can benefit from the inclusion of visuals (e.g., PowerPoints, Prezis, writing key concepts on the board, etc.) with your lecture. International students may also struggle with completing course readings, so it may be helpful to discuss effective reading strategies in your class.
May experience a high amount of cognitive load.	Multilingual international students may experience a high amount of cognitive load as they attempt to learn complex content in your class in a language they are still in the process of acquiring.	Sweller (2017) suggests being explicit in your instruction and discussion of key concepts in class, instead of expecting students to induce the information themselves from readings. For additional suggestions on teaching to reduce cognitive load, see Crosby (2015).
May overestimate their level of preparation, both academically and linguistically	International students, particularly those who transfer, may overestimate their level of preparation, both academically and linguistically. Like their domestic peers, they may not be accustomed to the rigor of an institution like UC Davis, and they therefore may	Try to be clear and transparent in your syllabus and course materials about your expectations for students and the academic demands of your class; this can help students prepare in advance for the more rigorous aspects of your course. See Part 3 of this resource for more on what

	not be prepared for the speed of the quarter system Additionally, they may be slow to seek help because they are accustomed to systems and faculty that reach out to them when they are at risk and direct them to services (Takaoglu, personal communication, 2017).	instructors can do to support international students. Assist students with time management by breaking up longer assignments into multiple due dates and reminding students frequently of these and other deadlines. You can also encourage students to form study groups, and have your TA's organize study sessions before major exams.
May feel uncomfortable participating in class discussions or activities	Glass (2012) found that intergroup dialogue contributed positively to international students' perceptions of campus climate. However, international students, especially multilingual learners who struggle with their speaking and listening skills in English, or those who come from cultures that don't encourage discussion in class, may feel uncomfortable or anxious about speaking during class discussions. Some of the anxiety surrounding speaking in class may be alleviated by first having students discuss in smaller groups. Three effective methods for equitable class discussions can be found to the right.	Employ think, pair, share activities, which will give multilingual students time to think through their response in writing first. If you notice a quieter student beginning to step up their verbal participation, be sure to send them an encouraging message privately by email, Canvas message, or in the hall after class. Have students get into groups of 2-6 people and ask them to select one person to report their ideas to the class. This gives everyone a chance to participate without feeling pressured to speak to the whole class. Employ a "round-robin" discussion structure, in which students speak in turns going around the circle. This gives each student a designated time to speak, which may relieve some of the anxiety for students who experience difficulty while speaking in groups.
May submit writing with consistent grammar or syntax errors, or lack knowledge of US writing conventions.	Writing from multilingual international students often displays consistent errors or patterns of error (particularly with articles and/or prepositions) that can distract from the writing's content, and in some cases, its intelligibility. These discrepancies are typical of foreign-language acquisition. International students may also have inconsistent knowledge of US writing conventions, especially regarding citation and plagiarism.	Before grading the paper, consider the impact these errors have on the student's ability to communicate their ideas and content. Freedman (n.d.) suggests allowing students to complete rough drafts for peer review, or to show you in office hours. Also, establish clear guidelines for plagiarism in your syllabus, and discuss this with your students. For more suggestions, see the Office of Student Support and Judicial Affairs, as well as our "Addressing Plagiarism Series."

Adapted from: CTE, n.d.; Freedman, n.d., Purdue Libraries, n.d.; Sato, 2015; UMCLRT, n.d.; & UWCTL, n.d.

Additional Resources

- The International & Academic English Program
- The Office of Student Support and Judicial Affairs
- Services for International Students and Scholars
- Writing Assistance Services, SASC

Please also refer to our "Strategies for Teaching Multilingual Learners Series" for more suggestions and strategies specifically regarding international students from non-English speaking countries.

Citation

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Strategies for Teaching International Students Series

PART 2: Supporting International Students' Social and Cultural Adjustment

In addition to the academic challenges international students face, these students also experience a variety of social and cultural challenges as they navigate attending school in a new country. Wu, Garza, & Guzman (2015) note that the transition to attending school in the US can often be overwhelming for international students, who may experience trouble communicating with instructors, staff, and peers. They may also experience culture shock, social isolation, homesickness, and other difficulties adjusting to a new culture. Additionally, Takaoglu notes that international transfer students may over-rely on small transfer communities that joined them in their move from their community college to their university, and therefore find it hard to break into already established cohorts in the new school (personal communication, 2017). Here are a few suggestions on how you can help support international students as they transition into the new social and cultural environment of your classroom:

Challenges	Explanations	Teaching Suggestions
May experience culture shock, or have difficulties with cultural adjustment	Adjusting to a new country, culture, campus, and set of academic expectations can be overwhelming for many international students (Yan & Berliner, 2013; Shi, 2011). This adjustment period can have an impact on their academic performance, especially if they have not been able to form a social support network.	Make your expectations clear in your syllabus, and be as transparent as possible in your assignment prompts and exams. Consider reaching out to a student who appears to be struggling in your class, and emphasize that students are welcome to attend your office hours. You can also refer students to Services for International Students and Scholars and to Counseling Services on campus.
May have difficulties understanding culture-specific references	Many international students experience difficulties understanding American cultural references, idioms, humor, and/or slang. They may be missing background information that instructors assume is already known (e.g., US history, etc.). This can make the already difficult task of learning in another language even more trialsome, and can also contribute to students' sense of social isolation and exclusion from their American peers.	Try to limit or avoid the use of specific cultural references, or explain the references you do use to ensure that all students understand and feel included. Do this in your syllabus, lectures, PowerPoint slides, assignment prompts, and all other class materials. Also consider providing resources that can help international students catch up on key background information that their American peers may already know.
May experience social isolation and/or a lack of meaningful relationships with their peers	Far away from their friends and family, international students are especially prone to experiencing social isolation. However, Gareis (2012) notes that forming relationships with host nationals can help international students with cultural adjustment and decrease their sense of social isolation, as can forming friendships with peers from their home countries.	Consider providing opportunities for intergroup interaction in your classroom, such as small group discussions or projects. See our series on "Activating Your Lecture" for more on active learning. Encourage students to seek out clubs and other groups related to their home countries, as these organizations can often offer social support to struggling students. You can also refer students to the Partners in Acquiring Language (PAL) Program on campus for more practice in conversing in English.

May experience cultural, racial, religious, and/or linguistic discrimination	Wu, Garza, & Guzman (2015) found that many international students report experiencing discrimination and/or stereotyping from instructors, staff, and peers. The researchers also found that while international students are generally interested in helping their American peers understand their diverse backgrounds, they do not always feel that they are given the chance to do so.	Try asking open-ended questions in order to facilitate equitable participation, and make some effort to call evenly on domestic and international students. Encourage students to share their diverse perspectives, but take care to not expect one student to be the sole representative of their culture.
		Model a positive orientation to multiple and multicultural perspectives through what you say in class and through readings and other class materials. If you overhear stereotypes being expressed, open a dialogue between students and supportively challenge those assumptions. For more on how to manage discrimination in your classroom, please see our series on "Microaggressions."

Adapted from: CTE, n.d.; Freedman, n.d., Purdue Libraries, n.d.; Sato, 2015; UMCLRT, n.d.; & UWCTL, n.d.

Additional Resources

- The International & Academic English Program
- The Office of Student Support and Judicial Affairs
- Services for International Students and Scholars
- Writing Assistance Services, SASC

Please also refer to our "Strategies for Teaching Multilingual Learners Series" for more suggestions and strategies specifically regarding international students from non-English speaking countries.

Citation

Center for Educational Effectiveness [CEE]. (2018). Strategies for Teaching International Students Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Strategies for Teaching International Students Series

PART 3: How Instructors can Contribute to International Students' Success

Instructors can play an important role in supporting international students, both in the classroom and outside. Instructors are often uniquely positioned to spot students who are struggling, and to intervene if possible, or to alert an advisor that the student may need additional support. Here are a few ways that instructors can support all students in their classrooms, including international students:

Strategies	Teaching Suggestions
Take time to figure out who your students are.	Consider having your students complete a survey or poll at the beginning of the year, and include questions about their cultural or national backgrounds, as well as their language/communication experiences and strengths.
Recognize the diverse perspectives, knowledge, experiences, and skills international learners contribute to the classroom.	Wu, Garza, & Guzman (2015) emphasize that international students "enrich the cultural diversity of campuses with their home culture and ethnic experiences" (p. 2). Consider the diverse perspectives and experiences your students have coming into the classroom, and develop ways to leverage and build on those experiences in your lectures and activities without asking students to act as the sole representatives of their entire culture or ethnicity. For example, asking open-ended questions during class discussions can be one way to encourage students to offer their own perspectives.
Provide regular opportunities for students to interact with their peers and with you.	In class, have students work in pairs or groups, and provide peer feedback opportunities on major projects. Use group-building strategies like "numbering off" to ensure that your domestic and international students have opportunities to form relationships and participate in intergroup dialogue (Gareis, 2012; Glass, 2012). Encourage students to come to office hours, and if possible, build time for one-to-one meetings with students (i.e., on major projects, on their progress in the class, etc.).
Provide frequent, timely feedback on writing and other work in class.	Endeavor to provide feedback in a timely manner (within a week if possible), so that students have an opportunity to integrate your comments into their next assignment. For more feedback strategies, see our "Effective Feedback Series."
Be strategic in your feedback, and focus on what relates most closely to your course objectives.	While multilingual international learners can benefit from feedback on error patterns or consistent mistakes in their writing, grammar should not be the focus of feedback for international students. Instead, like their domestic peers, they can benefit immensely from feedback on their ideas, content, support, and structure. Additionally, some international students may be unfamiliar with the directness of US academic writing, and thus may need help with developing a clear focus in their writing. Consider prioritizing comments in the areas mentioned above when giving feedback, and if you do mark papers for grammar, try to distinguish between errors that obscure meaning in the paper and errors that may be distracting but are ultimately unrelated to your course goals.
Build in opportunities for reflection and assessment	Build in opportunities for students to reflect on their learning, and for you to assess how well the class is understanding your content. For example, you could you have students complete a quick "clicker" quiz or a "minute paper" at the end of class.

Provide numerous opportunities for students to ask questions.	Some international students may feel uncomfortable expressing confusion during class. It can be helpful to open several lines of communication, and to encourage your students to ask questions in the way they feel most comfortable. For example, you could create a specific discussion board on Canvas for questions, and encourage students to message or email you if they don't feel comfortable sharing their question with the class.
Intervene when you notice a student is struggling.	When you notice a student may be struggling in your class, reach out to them through email or on Canvas. Sometimes, just showing that you're concerned about them can help a student feel more comfortable asking for support. Additionally, you can point them to (or remind them of) helpful resources like Services for International Students and Scholars.

Adapted from: CTE, n.d.; Freedman, n.d., Purdue Libraries, n.d.; Sato, 2015; UMCLRT, n.d.; & UWCTL, n.d.

Additional Resources

- The International & Academic English Program
- The Office of Student Support and Judicial Affairs
- Services for International Students and Scholars
- Writing Assistance Services, SASC

Please also refer to our "Strategies for Teaching Multilingual Learners Series" for more suggestions and strategies specifically regarding international students from non-English speaking countries.

Citation

Center for Educational Effectiveness [CEE]. (2018). Strategies for Teaching International Students Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Wu, H. P., Garza, E., & Guzman, N. (2015). International student's challenge and adjustment to college. *Education Research International, 2015*, 1-9.

Strategies for Teaching Multilingual Learners Series

PART 1: Who are Multilingual Learners?

UC Davis is a linguistically diverse campus, with much of its student population being bi or multilingual. According to UC Davis Admissions, of the undergraduate students admitted in 2016-2017, about 41% spoke only English at home, 27% spoke English and another language, and 33% spoke only another language at home. This resource will provide some information on the complex linguistic and cultural backgrounds of multilingual learners, and offer a number of specific strategies and suggestions for supporting these students in the classroom.

Who are multilingual students?
Multilingual students come from a variety of backgrounds in terms of language, culture, immigration or visa status, and time spent in the US. The majority of **international students** are bi or multilingual, with some having taken English classes throughout their schooling, while others attended international high schools where English was the primary language. Others may be **refugee students** (or those with similar backgrounds), who may have limited or interrupted literacy development in both their home languages and English (Menken, 2013). Another group common in California are long-term permanent residents and the children of immigrants who arrived when they were young children. Often identified as **Generation 1.5**, these students primarily grew up learning English in the US school system (Menken, 2013).

Challenges multilingual students may face in the classroom
Given their varied backgrounds, it is important to recognize that multilingual students may differ quite a bit from each other in the challenges they face in the classroom. Here are a few general examples of the challenges faced by multilingual students, and some suggestions on what you can do to help support them:

Challenges	Explanations	Teaching Suggestions
May be proficient in some modalities of English, but not others.	Multilingual students may differ in their proficiencies with English, or with certain modalities of English (i.e., writing, reading, listening, or speaking). For example, international students may be proficient in writing or reading in English, but may struggle considerably with their listening or speaking skills. In contrast, Generation 1.5 students may sound verbally indistinguishable from native English speakers, but may struggle with reading or writing in academic contexts (Menken, 2013).	Consider employing a variety of modes when lecturing, and when designing activities. For example, Freedman (n.d.) notes that all students, not just multilingual ones, can benefit from the inclusion of visuals (e.g., PowerPoints, Prezis, writing key concepts on the board, etc.) with your lecture. Encourage students to read ahead so that vocabulary is present and activated during class, and highlight assignments that require more reading/writing so that students can plan accordingly.
May experience a high amount of cognitive load.	Multilingual students may experience a high amount of cognitive load as they attempt to learn complex content in your class in a language they are still in the process of acquiring.	Sweller (2017) suggests clearly defining and explaining key course concepts in class, instead of expecting students to induce the information themselves from readings. Accompany these explanations with visuals that help students understand complex terms or ideas. For additional suggestions on teaching to reduce cognitive load, see Crosby (2015).

May feel uncomfortable participating in class discussions or activities	Multilingual students, especially those who struggle with their speaking and listening skills, or those who come from cultures that don't encourage discussion in class, may feel uncomfortable or anxious about speaking during class discussions.	Some of the anxiety surrounding speaking in class may be alleviated by first having students discuss in smaller groups. Have students get into groups of 2-6 people, and ask them to select one person to report their ideas to the class. You can also employ think, pair, share activities, which will give multilingual students time to think through their response in writing first.
May have difficulties completing or understanding course readings	Multilingual students may struggle to get through lengthy readings, especially when those readings use complex academic language and/or jargon.	Students may benefit from a quick overview of the main ideas, structures, and language in a reading. It may also be helpful to discuss effective reading strategies with students. Consider assigning Karen Rosenberg's "Reading Games" at the beginning of the term. This article, written for college students, provides strategies for tackling complex texts quickly.
May submit writing with consistent grammar or syntax errors	Writing from multilingual students often displays consistent errors or patterns of error (particularly with articles and/or prepositions) that can distract from the writing's content, and in some cases, its intelligibility. These students are often anxious about their writing, and may ask you specifically about their grammar.	Before grading the paper, consider the impact these errors have on the student's ability to communicate their ideas/content. Freedman (n.d.) suggests allowing students to complete rough drafts for peer review, or show you in office hours. You can also encourage students to access the Writing Assistance Services provided by SASC.
May have inconsistent knowledge of US writing conventions	Many students may have inconsistent knowledge of US writing conventions, especially regarding citation and plagiarism. Some may be unfamiliar with the concept of "ownership" in Western writing, or may have learned English by memorizing or repeating texts. They may also have been taught rhetorical conventions and/or methods of organization that differ from standard academic writing in the US.	Establish clear guidelines for plagiarism in your syllabus, and discuss this with your students. Also, consider the intentionality behind suspected plagiarism, and how your response can help the student learn from the mistake. For more suggestions, see the Office of Student Support and Judicial Affairs, as well as our "Addressing Plagiarism Series."

Adapted from: Freedman, n.d.; Sato, 2015; & UWCTL, n.d.

Additional Resources

- The International & Academic English Program
- Writing Assistance Services, SASC

As many multilingual learners are also international students, please also refer to our "Strategies for Teaching International Students Series" for more suggestions and strategies specifically regarding international students.

Citation

Center for Educational Effectiveness [CEE]. (2018). Strategies for Teaching Multilingual Learners Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Strategies for Teaching Multilingual Learners Series

PART 2: Promoting Success for Multilingual Learners

In the 2014 reaffirmed "Statement on Second Language Writing and Writers," the Conference on College Composition and Communication [CCCC] emphasizes that the linguistic backgrounds of multilingual students are often quite varied. Because of their highly varied relationships with English, it is important that instructors recognize the individual needs of multilingual students and resist taking a one-size-fits-all approach to the classroom. Instructors can play an important role in supporting multilingual students, both in the classroom and outside. They are often uniquely positioned to spot students who are struggling, and to intervene if possible, or to alert an advisor that the student may need additional support. Here are a few ways that instructors can support multilingual students in the classroom:

Strategies	Teaching Suggestions
Take time to figure out who your students are.	Consider having your students complete a survey or poll at the beginning of the year, and include questions about their language and communication experiences and strengths.
Recognize the unique perspectives, knowledge, experiences, and skills multilingual learners contribute to the classroom.	As discussed above, a survey or poll at the beginning of the year can help you understand your students prior knowledge. Consider the skills and knowledge your students have coming into the classroom, and develop ways to leverage and build on that experience in your lectures and activities without asking students to act as the sole representatives of their entire culture or ethnicity. For example, asking open-ended questions during class discussions can be one way to encourage students to offer their own perspectives.
Provide regular opportunities for students to interact with their peers and with you.	In class, have students work in varying pairs or groups, and provide peer feedback opportunities on major projects. Encourage students to come to office hours, and if possible, build time for one-to-one meetings with students (i.e., on major projects, on their progress in the class, etc.)
Provide timely feedback on writing and other coursework.	Endeavor to provide feedback in a timely manner (within a week if possible), so that students have an opportunity to integrate your comments into their next assignment. For more feedback strategies, see our "Effective Feedback Series."
Be strategic in your feedback, and focus on more than just grammar.	While multilingual learners can benefit from feedback on error patterns or consistent mistakes in their writing, they can also benefit from feedback on the content, support, and structure. Consider prioritizing comments on content and organization when giving feedback. If you do mark papers for grammar, try to distinguish between errors that obscure meaning in the paper and errors that may be distracting but are ultimately unrelated to your course goals.
Build in opportunities for reflection and assessment.	Build in opportunities for students to reflect on their learning, and for you to assess how well the class is understanding your content. For example, you could you have students complete a quick "clicker" quiz or a "minute paper" at the end of class.
Provide numerous opportunities for students to ask questions.	It can be helpful to open several lines of communication, and to encourage your students to ask questions. For example, you could create a specific discussion board on Canvas for questions, and encourage students to message or email you if they don't feel comfortable sharing their question with the class.

Intervene when you notice a student is struggling.	When you notice a student may be struggling in your class, reach out to them through email or on Canvas. Sometime, just showing that you're concerned about them can help a student feel more comfortable asking for support.

Adapted from: Freedman, n.d.; Sato, 2015; & UWCLT, n.d.

Additional Resources

- The International & Academic English Program
- Writing Assistance Services, SASC

As many multilingual learners are also international students, please also refer to our "Strategies for Teaching International Students Series" for more suggestions and strategies specifically regarding international students.

Citation

Center for Educational Effectiveness [CEE]. (2018). Strategies for Teaching Multilingual Learners Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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ASSESSING STUDENT LEARNING

Addressing Plagiarism

Effective Feedback

Grading & Assessment

Test Questions

Addressing Plagiarism Series

PART 1: The Dilemma of Academic Integrity in the Information Age

Over the last several decades, increased access to technology and the development of a global internet has had a profound and democratizing effect on education. However, with this increased access to information has come a bevy of legitimate concerns regarding the potential unethical use of sources by students (and faculty), and other serious forms of plagiarism. The Council of Writing Program Administrators [CWPA] (2003), a national academic and professional association for faculty and administrators directing writing programs, argues that the increased focus on investigating suspicions of plagiarism in students' writing may have the unintended consequence of diverting attention away from "developing students' writing, reading, and critical thinking abilities." While the importance of emphasizing and maintaining academic integrity cannot be stressed enough, for the sake of student learning, it is equally important to consider a more nuanced understanding of how and why plagiarism happens, especially for international students and first-generation students that may not be as familiar with the conventions of academic language.

Defining Plagiarism & Notifying Students

In the UC Davis Code of Academic Conduct, instances of plagiarism as recognized by the university include the following:

- Taking credit for any work created by another person. Work includes, but is not limited to books, articles, experimental methodology or results, compositions, images, lectures, computer programs, internet postings.
- Copying any work belonging to another person without indicating that the information is copied and properly citing the source of the work.
- If not directly copied, using another person's presentation of ideas without putting it in your own words or form and not giving proper citation.
- Creating false citations that do not correspond to the information you have used.

Although it is essential to uphold the above institutional policies on plagiarism in your classroom, researchers have argued that many of the current conversations around plagiarism fail to distinguish between intentional plagiarism and unintentional misuse of sources (CWPA, 2003; Li & Casanave, 2012, Thomas & Sassi, 2011). With this in mind, the CWPA (2003) define plagiarism in the following way: "In an instructional setting, plagiarism occurs when a writer *deliberately* [emphasis added] uses someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source."

Additionally, as of Fall 2018, Academic Senate Regulation 537 requires that "by the end of the first week of instruction, the instructor will provide students with a course outline containing information regarding the anticipated: topical content of the course, amount and kind of work expected, examination and grading procedures, and notice of the Code of Academic Conduct." Therefore, syllabi should contain a section clearly outlining an academic integrity policy and providing students with a hyperlink and/or the URL address to the Code of Academic Conduct.

Reasons students might plagiarize

Pearson (2011) argues that the best way to defend against plagiarism in the classroom is to develop a better understanding of why students plagiarize in the first place. Doing this can help you develop teaching strategies and assignment designs that make it difficult to plagiarize. Additionally, considering the reasoning as well as the intentionality behind a suspected instance of plagiarism can help you to determine how to respond in a way that will both hold the student accountable for their actions and help them learn from the experience. The chart below outlines a few common reasons for plagiarizing, taken from CWPA (2003), Jamieson & Howard (2013), Li & Casanave (2012), and Pearson (2011):

Types	Common Reasons for Plagiarizing
Unintentional	Lack of Knowledge of Ethical Citation Practices: Some students (e.g., international students, first-generation students, etc.) may have received incomplete or inconsistent education on citation in the past, or they may lack knowledge of the more sophisticated requirements for citation in college. They may fail to devote enough attention to the stylistic requirements of citation, or may not understand the importance of those characteristics, which can lead to sloppy or unclear citations.
	Tried but Improperly Integrated Sources: Many students have difficulty comprehending the complex scholarly sources they are expected to cite in college and may consequently accidently misappropriate or misuse sources (e.g., patchwriting, misrepresentation, etc.). They may know to make a references page, but may not understand that in-texts citations are also required (or vice versa). They may know to cite some things (like quotes) but not others (like paraphrases). They may also just make honest mistakes (like forgetting to cite a source).
	Cultural Differences in Attribution: The CWPA (2003) notes that differing cultural conceptualizations of ethical attribution practices may mean that "students from other cultures may not be familiar with the conventions governing attribution and plagiarism in American colleges and universities."
Intentional	Panic Plagiarizing: Students may fear that they will do poorly or even fail the assignment or may fear being turned down if they were to ask for an extension. They might have insecurities about the quality of their writing or may feel hopelessly confused by the project. They may have poor time management skills or may honestly be overwhelmed by too many responsibilities (school, work, family/children, etc.).
	Intentional Cheating: Students may have a sense that the class is unimportant or lack the desire to complete the assignment. They may have plagiarized without penalty in the past, or seen others getting away with it. The course assignments may make it seem so easy to plagiarize that a student may feel justified in doing so.

Additional Resources

- The Purdue OWL provides comprehensive guides for citing in APA, MLA, AMA, and Chicago style.
- The UC Davis Libraries also provide comprehensive subject guides for a variety of citation styles.
- The following two resources come from the Writing Commons, a peer-reviewed, open-source resource for writers. Both resources are meant for students, and provide information about what counts as plagiarism, as well as strategies for avoiding it:
  - "Avoiding Plagiarism" (article)
  - "Avoiding Plagiarism: A Checklist for Student Writers"
- There are a number of online plagiarism-checking services that can be helpful in detecting instances of plagiarism. Some of these services are free, while others require a paid licence. It is important, however, to use these services with caution, as they are not always reliably accurate (Straumsheim, 2015), and are fraught with their own ethical conundrums (Marsh, 2004, McKeever, 2006). Here are a few examples of online plagiarism checkers:
  - Turnitin.com
  - Glatt Plagiarism Services
  - Viper
  - Plagiarismchecker.com
  - Google

Citation

Center for Educational Effectiveness [CEE]. (2018). Addressing Plagiarism Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Addressing Plagiarism Series

PART 2: Strategies for Addressing Plagiarism in the Classroom

Specifically addressing plagiarism in the classroom can be one of the most effective strategies for helping students avoid it (Thomas & Sassi, 2011). Teachers often assume that students have already been taught ethical citation practices and what constitutes plagiarism; in reality, some students may have little to no experience with this topic at all (Pearson, 2011). The Council of Writing Program Administrators [CWPA] (2003) outlines a few strategies for effectively addressing plagiarism with your students:

Strategies	Teaching Suggestions
Develop clear policies	Develop clear policies and expectations for the use and misuse of sources in your classroom, and discuss these policies and the underlying implications of plagiarism with your students. Make sure your policies are also clearly articulated in your syllabus and that your syllabus refers students to the Academic Code of Conduct as per Academic Senate Regulation 537. Transparency can be especially important for first-generation students who may feel less confident about approaching instructors for clarification (Engle & Tinto, 2008), and has been shown to lead to better retention and increased academic confidence in students (Winkelmes et al., 2016).
Discourage plagiarism through assignment design	Design and sequence your writing assignments in ways that discourage or avoid opportunities for plagiarism (see PART 3 for more specific strategies on how to do this).
Develop students' reading skills	Help your students develop strong reading skills, and ask them to cite a variety of different sources from varying points of view. Consider discussing how to evaluate the credibility of sources with your students as well.
Consider intentionality	Consider the intentionality behind a suspected instance of plagiarism; has the student deliberately plagiarized, or have they misused a source? Ask the student to provide process drafts and to walk you through their research process. If they cannot do this, then refer to your syllabus policy for what to do next.
Follow UC Davis guidelines	When taking disciplinary action, be sure to follow institutional guidelines outlined in the UC Davis Code of Academic Conduct. Consider what you want the student to learn from the experience as well; while failure of the assignment or course can be an effective learning experience for the student, so can recreating the research process and rewriting the paper.

How can I help my students learn how to use sources more ethically?
Jamieson (2008) argues that because accepted standards for the use of sources can differ significantly from discipline to discipline, "we need to focus on *use* of sources rather than *misuse* of sources" [emphasis original] (pp. 183-184). If a student has tried to cite sources but failed to do so properly, this can provide an opportunity for discipline-specific learning. Here are a few suggestions for how to help your students develop ethical practices for using sources:

Strategies	Explanations	Teaching Suggestions
Teach students the citation norms of your discipline in class…	Glenn & Goldthwaite (2014) argue that while students may have some knowledge of citation, they may have a limited understanding of the ethical and	Take a few minutes of class time to talk about how writers in your discipline cite and integrate sources, or ask your TAs to do so if you have a lab or a discussion

	rhetorical function citation plays in academic writing, especially when disciplinary differences are factored in.	section for your course. By discussing this issue with your students, "you'll provide a forum for discussing the ethical and cultural dimensions" of citation in a way that shows its importance beyond the classroom (Glenn & Goldthwaite, 2014, p. 92).
...or through a homework project out-of-class	Having students complete a low-stakes homework assignment about plagiarism can demonstrate the importance you place on ethical source use, and give your students a sense of your expectations regarding plagiarism.	If you don't have time to take during class to discuss citation practices, have students complete an out-of-class assignment on the topic. For example, Indiana University has developed a series of tutorials and tests meant to help students understand what counts as plagiarism.
Help develop your students reading comprehension skills	In their study, Jamieson & Howard (2013) found that most of the time, students only cite single sentences from a source, and that those sentences generally come from the first 1-2 pages. They conclude that there is "scant evidence that the students can comprehend and make use of complex written texts" (p. 129), and suggest that this might in part explain students' common misuses of sources.	Help your students develop stronger reading comprehension skills by practicing reading and interpreting complex scholarly works in class or through out-of-class homework activities. For example, consider assigning Karen Rosenberg's "Reading Games" at the beginning of the term. This article, written for college students, provides strategies for tackling complex texts quickly.
Provide resources for citation through Canvas	Providing students with additional resources on citing and integrating sources can help to reinforce your conversations on these concepts in class, and can be useful for them in future classes as well.	Link to resources on Canvas for citing and integrating sources (such as the ones cited in Additional Resources in PART 1), so that students can access citation support if needed.

Additional Resources

- See PART 1 of this resource for a list of additional resources related to plagiarism.

Citation

Center for Educational Effectiveness [CEE]. (2018). Addressing Plagiarism Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Addressing Plagiarism Series

PART 3: Designing Writing Assignments that Discourage Opportunities for Plagiarism

In their book, Glenn & Goldthwaite (2014) argue that "the best policy for dealing with plagiarism is to avoid inviting it in the first place" (p. 92). In fact, Heckler, Forde, & Bryan (2013) found that assignments designed to discourage plagiarism were statistically associated with lower instances of it. Below, Glenn & Goldthwaite (2014) and the Council of Writing Program Administrators [CWPA] (2003) offer a number of suggestions for designing assignments that discourage or avoid opportunities for plagiarism.

Strategies	Teaching Suggestions
Avoid assigning common projects	Avoid assigning standard writing projects on common or popular topics, as it may be easy for students to find papers on these topics for sale online. Also try to avoid assigning the exact same prompt year after year, as students may find it easy to submit a friend's copy from the year before.
Multiple drafts	Ask students to submit multiple drafts of their project at various stages of development. A variation on this is to ask students to complete research portfolios that include previous drafts, outlines, annotated bibliographies, and other process work.
Design active writing assignments	Design assignments that ask students to do more than just regurgitate information they found from sources. For example, Heckler, Forde, & Bryan (2013) advocate for assignments designed to have students "*operate* on the information [they find from sources], not just regurgitate it" [emphasis original] (p. 96).
Sequence your writing assignments	If possible, design a sequence of writing assignments that build on each other, using the same topic. For example, you could have students complete an annotated bibliography, followed by a compare/contrast analysis of two sources holding differing positions on the topic, and then a research argument paper synthesizing their own perspective with that of their sources.
Create "authentic" writing projects	Consider grounding your writing assignment in a local context. For example, you could ask students to research and present a solution to a campus or Davis-specific problem. A variation on this is the "Authentic Writing Assignment": Anderson, Hoffman, & Little (2014) define "authentic" writing assignments as asking students to practice the types writing and thinking professionals in their discipline actually engage in. These types of assignment are less likely to show up on paper mill sites, and are unique enough to be memorable should a student attempt to submit a copy from a peer.
Allot plenty of time for the assignment	Give your students plenty of time to delve deep into the research on their topic, and provide specific deadlines for drafts so that they can manage their time well. Many students may "panic plagiarize" because they have not developed adequate time management skills, or because they do not feel they have enough time to complete a quality writing project.

Additional Resources

- See PART 1 of this resource for a list of additional resources related to plagiarism.
- Be sure to direct students to the Academic Code of Conduct on your syllabus as required by the Academic Senate Regulation 537.
- For additional suggestions on incorporating writing assignments into your classroom, please see our "Designing Effective Writing Assignments Series."

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Effective Feedback Series

PART 1: The Importance of Feedback for Student Learning

Decades of research in higher education has proven that the most effective learning activities share some common characteristics, one of which is timely feedback focused on learning outcomes (Chickering & Gamson, 1987, Kuh, 2008, Ambrose et al., 2010). For example, feedback could take the form of a completed rubric grid, or written comments on a problem set or draft paper. A primary purpose of effective feedback is to help students learn, so it's important that students get feedback as part of an ongoing formative process in which they have the opportunity to implement changes (Shute, 2008). Ultimately, effective feedback can lead to more self-directed and autonomous learners, thinkers, and engaged members of society.

How can I write feedback more effectively and efficiently?
Research has shown that the most effective feedback is focused, forward-looking, and timely (e.g., Ambrose, et al. 2010; Fink, 2003; Hyland, 2013; Shute, 2007; Wiggins, 2012). Feedback should be formative, communicating how students are doing in relation to stated learning goals, and what specific steps they should take to improve (Sadler, 1989; Shute, 2008). They should then be expected to demonstrate how they incorporated the feedback into subsequent assignments. In order to do this, students should receive feedback both frequently and in a timely manner (Hyland, 2013; Wiggins, 2012), so that they can make the best use of it. Below are tips on how to make your feedback focused, formative, and timely.

Focused	
Strategies	**Teaching Suggestions**
Incorporate rubrics into your feedback methods	Use rubrics which explicitly state the criteria against which students' work is to be evaluated, and make sure these criteria are linked to learning outcomes. Focused rubrics can clarify expectations for assessment among students and instructors. Nicol (2013) recommends explicitly positioning feedback through learning outcomes, as this will help illustrate the gap between a student's performance and the intended outcomes, and therefore help that student to understand the feedback. There are some great example rubrics here.
Prioritize information that would be most useful to students at the time it is received.	In most cases, 2-3 recommendations for improvement is appropriate. Too much feedback has been shown to overwhelm students, or prompt them to focus on easy-to-implement changes rather than structural elements (Lunsford, 1997; Lamburg, 1980; Davis, 2009). This strategy is more efficient *and* provides your students more effective feedback.
Tie comments to specific aspects of the assignment.	Relate comments to specific places in the assignment, such as a certain paragraph in a paper or step in a math problem. Include some examples of places the student did well, as students often can't recognize the progress they're making toward learning outcomes. Try to avoid broad evaluative comments like "This isn't clear," or "Awkward."
"Say back" what you thought the student was trying to say.	If it is appropriate to the assignment, "Say back" what you thought the student's main point was. This can help students see your feedback as descriptive and nonjudgmental, rather than authoritarian. It can also highlight the difference between their intention and the results of their work (Nicol, 2013).

Focus less on grammar and more on content and learning outcomes.	Don't award more than 20% credit for grammar and mechanics, and focus instead on aspects of the assignment that most directly relate to learning outcomes. This will make providing feedback more time effective for you, and more meaningful for your students (Haswell, 1983). Some students may exhibit "written accents" (i.e. missing articles, incorrect verb tenses, incorrect prepositions) and in the interest of aligning your feedback with learning outcomes, it's important not to devote too much attention to these features of the writing.

Forward-Looking	
Strategies	**Teaching Suggestions**
Practice "feed-forward" strategies.	Provide "feed-forward" (Knight, 2006) rather than "feed-back." Suggest goals or specific strategies that are applicable to future work the student will undertake. Structure assignments so subsequent work specifically asks students to incorporate feedback, and state how they incorporated it.
Address patterns you see in assignments, rather than line editing.	Line editing encourages students to passively copy your corrections, rather than making corrections on their own (Haswell, 1983). Commenting on patterns gives students a more holistic view of their performance and makes the feedback more transferrable to future work. And, it makes writing feedback more efficient.

Timely	
Strategies	**Teaching Suggestions**
Consider when feedback will be most helpful for students.	Make sure feedback is provided in a timely manner and when it can be used by the student (Wiggins, 2012). This might simply mean providing it well in advance of the next assignment.
Provide general feedback in class	If timely return of all assignments is not possible, consider providing general feedback on the project in class. This will ensure your students receive the feedback when it's useful, and it's also a more efficient way for you to provide it.
Provide feedback frequently.	Make sure feedback is frequent (Gibbs & Simpson, 2005). If you're able to design an assignment structure that features frequent feedback building to the next assignment, it will allow students to incorporate that feedback and practice the key skills of the course. Also, giving students the chance to learn a skill in an iterative process will have more lasting effects (Ambrose, 2010). While they should never replace instructor feedback entirely, peer- and self-feedback can increase the timeliness and frequency of feedback, making the process more efficient for an instructor.

Citation

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Effective Feedback Series

PART 2: Strategies for Facilitating Peer Feedback

While instructor feedback is important, peer feedback can sometimes be more helpful for students in that students can relate to each other's perspectives and speak on each other's level in a way instructors can't (Cho & MacArthur, 2010). However, peer response is primarily recommended in conjunction with self and/or instructor feedback (Dochy et al., 1999). Peer feedback is most effective when there is a specific structure to it, when writers receive feedback from multiple peers (Cho & Schunn, 2007), and when they have adequate time to implement it (Ambrose et al., 2010). Research has also demonstrated that simply engaging in the process of providing feedback to peers can improve a student's own writing, particularly for English Language Learners (Lundstrom & Baker, 2009).

Strategies	Teaching Suggestions
Provide a rubric that students can use to guide their feedback.	To prepare students to comment on one another's work, provide a rubric or feedback sheet. Practice providing feedback together in class to ensure students know what constitutes constructive feedback. You can access a sample structure for peer feedback here.
Acknowledge that students may hold negative perspectives of peer review.	Research has demonstrated that students often feel negatively about engaging in peer review (Mulder, Pearce, & Baik, 2014; Kaufmann & Schunn, 2011; Brammer & Rees; 2007). To mitigate this, you can monitor students' feedback to one another and award participation credit for it. This will encourage accountability.
Be cautious in awarding grades based on peer feedback.	Dancer & Dancer (1992) found that peers are prone to rate one another based on uniformity, race, and friendship if not properly trained. Students also tend to feel more negatively toward peer review when students are put in charge of each other's grades (Kaufmann & Schunn, 2011; Kaufmann; Schunn, & Charney, 2006). In addition, agreement between peer and instructor feedback has varied a great deal among studies (Oldfield & Macalpine, 1995; Orsmond et al., 1996).

To review, formative feedback is critical to student learning and in order to be effective it should be focused on learning outcomes, forward looking to subsequent assignments, and provided when it's most useful in a timely manner. Peer feedback can supplement instructor feedback, but should always be clearly structured and practiced in conjunction with instructor feedback. Finally, when students assess themselves they can build increased engagement with course material, transfer skills from one learning context to another, and develop the skills necessary to be self-directed, lifelong learners.

Sample Peer Response Activity (adapted from Ambrose et al., 2010)
Please read the paper through the first time without making any markings on it in order to familiarize yourself with the paper.

I. During the second read, please do the following:
   - Underline the main argument of the paper.
   - Put a checkmark in the left column next to pieces of evidence that support the argument.
   - Circle the conclusion.

II. Once you have done this, read the paper for the third and final time, and respond briefly to the following questions:
   - Does the first paragraph present the writer's argument and the approach the writer is taking in presenting that argument? If not, which piece is missing, unclear, understated, and so forth?

- Does the argument progress clearly from one paragraph to the next (for example, is the sequencing/organization logical)? Does each paragraph add to the argument (that is, link the evidence to the main purpose of the paper)? If so, please provide an example to illustrate how they do so. If not, where does the structure break down, and/or which paragraph is problematic and why?
- Does the writer support the argument with evidence? Please indicate where there is a paragraph strong with evidence, weak on evidence, evidence not supporting the argument, and so on.
- Does the conclusion draw together the strands of the argument? If not, what is missing?
- What is the best part of the paper?
- Which area(s) of the paper needs most improvement (e.g., the argument, the organization, sentence structure or word choice, evidence)? Be specific so that the writer knows where to focus his or her energy.

Citation

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Effective Feedback Series

PART 3: Using Reflective Activities with Students as Self-Assessment

When students give themselves feedback, or assess their own work, their performance on tests improves (Hassmen et al., 1996), and when they reflect multiple times on their work, they become more aware of its quality in relation to learning outcomes (Gentle, 1994). The metacognitive task of self-reflection has also been shown to improve the likelihood of students transferring knowledge from one learning context to another (Wardle, 2007).

Strategies	Teaching Suggestions
Use an "exam wrapper" after graded exams.	An "exam wrapper" is an assignment distributed along with graded exams, that asks students to reflect on how they prepared for the exam, their performance, and how they might prepare for the next exam. When it's time to start studying for the next exam, re-distribute students' exam wrappers for their reference.
Assign a "cover letter" with major projects.	Assign a "cover letter" along with an assignment, in which students list the assignment's main points, areas they felt were strong and weak, and specific questions they have for the instructor as a reader. In order to help students formulate appropriate and high-level questions, make sure learning outcomes are explicit and consider giving them time in groups to compose questions together.
Invite students to participate in creating class rubrics.	Invite students to participate in creating the rubric and standards for evaluation, to involve them in assessing their own learning (Adams & King, 1995, Inoue, 2004). Students can help formulate a rubric in class, or submit their suggestions through an online forum.

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Grading and Assessment Series

PART 1: Ways Assessment Impacts Learning

One of the most common concerns expressed by instructors is how they will know whether students are learning. You do not have to wait until you are engaged in formal "grading" to find out what your students are (or are not) learning. This series provides useful strategies for gathering information about your students' learning while there is still time to make adjustments to or clarifications in your instruction that will benefit your students.

Generally, assessment can be thought of as research into learning, so it's important to clarify key terms. The more clearly you understand the different purposes and approaches of assessment, the more effective you will be at communicating your expectations and documenting students' progress toward meeting your goals for their learning.

Assessment is the process of collecting and using evidence of student learning to provide instructors with information about some aspect of teaching and learning. Using the course-level assessment strategies described below, you will have the information you need about whether you can move forward with a particular topic or activity or whether students need more time to discuss or practice. Many of these tools will also help you to provide timely and useful feedback to students, to use data to assign grades, and to record data related to students' achievement of the course learning outcomes. The assessment tools you select should always be aligned to your course learning outcomes and should yield information to support your teaching and your students' learning (Fink, 2013; Jankowski & Marshall, 2017). For more on this, see Course Design Series.

There are three general functions for assessment within courses: diagnostic, formative, and summative.

Diagnostic assessment takes place prior to instruction. For example, at the beginning of a course or class meeting, it can be useful to gather information about students' prior knowledge. Examples of diagnostic assessments include a summary of what a student knows about the course topic (poll or minute paper) or a concept inventory, both of which measure students' existing content knowledge. Asking students to consider what they already know (or think they know) about a topic also supports metacognitive development (see Reflection & Metacognition Series).

Formative assessment takes place during instruction and involves gathering information from and about students and using that data to make adjustments to your teaching and/or the pace of the lesson (McKeachie & Svinicki, 2013). You can also use the data to identify students' misunderstandings right away, allowing you to reteach concepts or skills. For example, in a lab setting, ask each person to demonstrate safety procedures using an observation checklist. Or, at the end of a lecture/discussion, ask students to write a one- sentence summary of an important take away. If you discover that a majority of the students do not understand an important step or the main objective of the discussion, you can spend instructional time addressing the specific issue. In addition to the list of formative assessment tools listed below, you may consider using quizzes, homework, drafts of lab reports or essays, and/or problem sets as sources of formative information. Identifying trends or patterns related to student weaknesses or misperceptions demonstrated in these assignments, provide you with opportunities to reteach or present concepts in a different modality, in order for students to better learn.

Summative assessment provides a snapshot of student learning at a particular point- in-time (usually at the end of a course or program). Data from summative assessment can inform planning for the next term and be included in final grade calculations. Designing and aligning assessments with the learning outcomes is a necessary part of course design and helps you to plan learning activities that prepare your students to be successful. Common examples of summative data include final exam scores, final grades for papers, projects, and/or presentations.

Criterion-referenced assessment of learning in which evidence of student learning is compared to defined and articulated criteria, rather than to other students' performances. Criterion-referenced assessment yields data that inform discussions about whether a program is providing appropriately sequenced opportunities to learn (such as rubrics and scoring guides). Rubrics are tools to support this kind of assessment and will be discussed later in this part.

Norm-referenced assessment measures *relative* performance. For example, norm-referenced grading (also known as curved-grading) measures how one student performs in comparison to other students who completed the same assignment. This type of grading's usefulness is limited since it does little to provide information about how students demonstrate learning for criteria related to the course. It also does little to accurately compare learning across the same courses at different times.

How Can I Check for Student Understanding?
Checking for understanding is not the same thing as grading students. It is beneficial to you and your students to check understanding periodically and to provide students with feedback on their learning. A variety of tools can help you document your students' knowledge, skills, and/or abilities throughout the quarter and within each class session. Keep in mind that the assessment tools you choose should align with the course learning outcomes for what you want students to learn and to be able to do.

Communicate Assignment and Grading Expectations
Students who understand expectations are better equipped to assess their own mastery, seek assistance as needed, and make progress toward successfully completing an assignment or course. When you explain what you expect ahead of time and provide students with opportunities to ask questions, you may be able to decrease the possibility that a student might dispute her/his grade. By establishing and communicating expectations, you ensure that your evaluation of students' work is based on specific criteria that are aligned to the particular assignment. This clarity promotes consistency in grading and can help to make grading more efficient. In all cases, introducing the assignment and expectations to students is a form of transparent and inclusive teaching (see Inclusive Practice Series).

- Clearly articulate the learning objectives of the assignment before it's due. The percentage weights for grading the various components should reflect those objectives. For example, if the primary goal of an essay is to clearly communicate factual material, creativity should not be heavily weighted.
- Decide in advance the importance of factors such as grammar and spelling and make sure your students know how to access support if they want or need it.
- Whenever possible, include your grading rubric or written criteria so that students know your expectations **in advance** (Handelsman, Miller, & Pfund, 2007).
- Include a checklist of what you expect the students to submit, in which format, word count, etc.
- Provide examples and/or a model of the assignment in order to familiarize your students with the content and proper format (e.g., lab report, blog/discussion posting, five-paragraph essay).
- Spend time in class going over the requirements and answering questions. To avoid redundancy, it may be helpful to start a discussion thread on Canvas so that students can post questions, and everyone can see your responses.

Creating and Using Rubrics
A rubric is a tool that establishes criteria and expectations for a given assignment. Rubrics come in many forms and serve different purposes. Depending on the goals for the course, you may choose a **holistic** or **analytic rubric.**

Holistic rubrics yield a single score, which represents the whole performance of the assignment. For example, you might articulate the expectations for an "A" paper compared to a "B" and "C" paper in a holistic rubric, and then assign the grades based on how the student work compares to these expectations. They can save time for the grader, but because they only provide general information (and not necessarily specific feedback), it may be difficult for students to know what changes are needed for future assignments.

Analytic rubrics include clear descriptions and criteria of the expected performance. For example, you

could use an analytic rubric to specify the required components of a lab report (e.g., methods, results, data tables) and communicate the levels of performance (e.g., exceeds expectations, meets expectations, developing, needs improvement) for each component. Using an analytic rubric will allow you to identify strengths and weaknesses by criteria and provide useful information to students.

Analytic rubrics also:

- Speed up the grading process;
- Provide "actionable" feedback, so students can see which criteria they need to improve upon;
- Increase equity in grading; and
- Promote metacognition (student awareness of their own learning).

Use of a rubric is optimized when it is presented along with the description of the assignment. The criteria and differentiated performance levels help structure and make expectations clear and transparent to students. Rubrics can also be used for self-reflection (students score their own draft or product) or peer assessment (see Part 3 of this series) prior to finalizing drafts for submission.

Steps to Creating a Rubric

1. Define the purpose of the assignment.
   - Is it to provide feedback?
   - Is it to check for understanding?
   - Is it to identify errors?

2. Define your expectations.
   - What is the exact nature of the task students will complete?
   - What knowledge, skills, and/or dispositions will students demonstrate?
   - What evidence do you need to see to determine whether students have accomplished what you hoped they would accomplish when you created the assignment?

3. Identify the criteria the assignment addresses.
   - For an essay, the criteria might include: content, organization, language, and conventions.
   - For a lab report, the criteria might describe the expectations for each of the required components, e.g., abstract, introduction, methods, materials, results, discussion, and conclusion.

4. For each criterion, write a detailed description of expectations for each performance level (e.g., Below Expectations, Needs Improvement, Meets Expectations, Exceeds Expectations).

Appendix 1 provides an example of a well-designed and comprehensive rubric, with criteria listed on the left and the various performance levels across the top.

Strategies for Grading Effectively and Efficiently

In well-designed courses, instruction and assessment go hand-in-hand, so instructors are also responsible for the grading of student work such as exams, quizzes, papers, labs, and problem sets. There are tools and technologies to make this an efficient process, such as Gradescope, Turnitin, and Canvas SpeedGrader. In addition, grading is most often, accomplished through a team of Teaching Assistants. Before grading, you should always communicate with the individual or team of TAs about the grading criteria. In some instances, you may provide them with a rubric (see Appendix 1 for an example) or a set of assignment-specific criteria with their relative importance in relation to the overall grade (see Part 3 of this series for an example of a checklist with criteria). This will help grading of student work to be consistent and efficient. Share these tools with your students to help focus their efforts and to emphasize that you grade in a manner that minimizes subjectivity.

If you have a TA (or a team of them) grading an assignment, hold a "norming session" to ensure uniform grading standards and marking procedures. This can help to ensure that assignments are scored similarly across graders and in support of your expectations. Grade a few exams or papers together, discussing your evaluations of each question. Develop a scoring guide together if one doesn't already exist for future reference. You might also consider providing TAs with the following suggestions:

- Review the grading criteria before beginning.
- Grade as anonymously as possible. For example, ask students to write their names on the back. Also, Canvas has a setting for "anonymous grading."
- Skim five or more students' papers or lab reports before beginning to grade in earnest. This preliminary reading will give a range of the answers that students are producing.
- Set a maximum time limit for grading each answer, section, or paper. This way no response gets more consideration or scrutiny than another.
- Grade all students' responses to one question or section before moving on to another. That way the questions and answers are familiar.
- Make stacks of papers containing responses that are of similar quality and then review them for consistency before marking points on the papers.
- Grade when fresh, taking breaks as necessary. Being tired, hungry, or anxious about time does not promote efficiency or fairness.
- When finished, return to the first few graded assignments to check for consistency. If it's not consistent, fix it.

The next part of this series describes many practical and concrete types of formative assessment that you can incorporate into your class. It also discusses the many options to traditional testing assessments.

Acknowledgement
The rubric for this resource was developed by Kimberlee Shauman, PhD, Department of Sociology.

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Additional Resources

- For more information on Rubrics from Association of American Colleges & Universities (AAC&U). This site includes downloadable rubrics (as Word documents) for customizing.
- For more information on Student Learning Outcomes Assessment at UC Davis

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Grading & Assessment Series

APPENDIX 1: Rubric for Conceptual Map

	Excellent A → A -	Very Good B + → B	Good B → B -	Fair C + → C	Weak C - → D
Completeness (37.5%)	Map includes all concepts/information relevant to the argument/explanation presented in the course material and includes details necessary for interpretability. The map distinguishes concept-level information from detail appropriately.	Map generally includes all concepts/information relevant to the argument/explanation presented but is missing some detail. Map is not fully successful at balancing concept-level and detail-level information.	Map includes most of concepts/information relevant to the argument/ explanation presented but is missing 1-2 core concepts/ideas relevant to the argument/explanation and/or is missing a significant amount of the necessary detail.	Map omits multiple concepts that are relevant to the argument/ explanation, does not cover all of the required course material, and/or is missing a significant amount of the detail necessary to convey the argument/ explanation completely.	Map omits multiple concepts relevant to the argument/ explanation and/or information presented in the course material and/or is missing details necessary to convey the argument/explanation completely.
Accuracy (37.5%)	Information presented is accurate: specific concept names are defined and used correctly; logic of argumentation is correctly represented in arrangement of information.	Information presented is generally accurate but includes a few errors in usage and/or logical arrangement.	Information presented is accurate in majority of map but includes a significant number of errors in usage and/or arrangement.	Information presented is correct in some parts of the map, but the majority of the map content is inaccurate in information usage and/or logical arrangement.	Information presented is incorrect on the majority of the map.
Clarity (25%)	All text is easy to read/understand and all elements are presented *and* arranged in a way that clearly conveys the specific content and the logic of the explanation/argument/ etc. (i.e., the relationships between the individual pieces of information are easily understandable).	Presentation and arrangement of text and elements are generally successful at conveying the specifics and logic of the explanation/ argument, etc., but it is difficult to interpret some specifics and/or relationships.	Presentation and arrangement of text and elements are difficult to interpret in multiple parts of the map, either within specific elements or in the presentation of how they relate to each other.	Presentation and arrangement of text and elements are difficult to interpret in many parts of the map, within specific elements and in the presentation of how they relate to each other.	Presentation and arrangement of text and elements are difficult to interpret in the majority of the map.

Rubric developed by Kimberlee Shauman, PhD, UC Davis Department of Sociology for Soc 140: Social Stratification

Grading and Assessment Series

PART 2: Incorporating Alternative Types of Assessments

Formative assessment tools are useful for gathering information at different points in a course. Choosing the right tool depends on the defined course learning outcomes and what you want to learn about your teaching and your students' learning.

If you want to quickly assess prior knowledge, recall, and understanding:

- **Minute paper** Ask students to write for a minute or so on a question that you pose. Choose a specific question, or ask them: What is the most significant thing you learned today? Students can submit responses anonymously or for participation credit. This allows you to determine what students think is most important and how that aligns with your goals.
- **The muddiest point.** Ask students to write what was the "muddiest point," or most unclear concept in the lecture, discussion, presentation, homework, reading, film, etc. They can do this before they come to class for material they have reviewed outside of class, or in the middle or end of class for concepts learned that day. This provides you with feedback about what students find most confusing, and helps students reflect on t they don't understand.
- **Instant or online polling.** If the concepts that you are discussing can be reviewed accurately using multiple choice questions, ask students to respond to questions during class using iClickers, anonymous online polls (www.polleverywhere.com or www.socrative.com or www.mentimeter.com), or Google Forms. This lets you see how well students understand concepts in real time and provides students with feedback on their understanding when the answer is revealed. Students can also participate in online polls and quizzes before or after class to get feedback on their background knowledge, their preparation for class, or how well they understood material covered in class. For a low-tech version, have students close their eyes and raise their fingers to indicate level of understanding or which number they think the answer is. You may use colored note cards as a way to indicate the answer.

If you want to assess higher-level thinking skills (according to Bloom's Taxonomy) such as application, synthesis, and critical thinking:

- **The one-sentence summary.** Ask students to answer the question "who does what to whom, when, where, how, and why?" about a given topic, and then to synthesize their answer into a single informative sentence. This provides feedback about how students can summarize a large amount of information concisely and completely. This works well when there is information that can be summarized in declarative form, such as in historical events, political processes, plots of stories or novels, chemical reactions, and mechanical processes.
- **Concept maps (mind maps or diagrams or flowcharts).** Students map out how concepts or a process are related and organize them into a framework. This presents a "big picture" view of students' understanding, and can help them make connections between ideas that they have learned on their own and that you have focused on in class. Concept maps can be created by hand or online with tools like, Google Jamboards and Text 2 Mind Map.
- **Case study.** Case studies describe potential scenarios where a decision needs to be made regarding a problem, a patient, etc. Present students with case studies and ask students to think about how they would solve the issue drawing from what has been covered in class or the textbook. You may introduce a topic using a case study and refer back to it throughout your class, assign them for homework, or use them to generate a discussion. Case studies are ideal for building analytical thinking skills and applying content knowledge to real world problems.
- **Guided peer review.** Have students provide feedback to their peers on a draft of an essay, a project proposal, or a lab report. Provide students with a checklist of items or questions that you or the grader will be looking for when they submit their actual assignment so that students can review their peer's work to see if all of those elements are present. For more details and examples on how to implement peer assessment/review into your class, see Part 3 of this

series.

- **Pro and con grid.** Students jot down a quick list of pros and cons on a particular topic or issue. This requires students to search for at least two sides of an issue or claim and weigh the value of competing claims. The exercise provides you information on the depth and breadth of students' analytical skills and capacity for objectivity.

If you want to assess personal learning strategies and progress:

- **Learning journals.** Students keep journals that detail their thoughts about the class. Journals are turned in several times throughout the course, so you can track their development. You can ask students to focus on course knowledge or skills, or on their learning process and personal attitudes and values.
- **Exam/Homework Wrappers.** Students are given short handouts to complete when their exam is returned to them. These post-exam reflections guide students in reviewing their performance, instructor feedback, and future exam preparations. Additionally, some assignments could have reflection questions before and after the assigned questions or required work. See the Reflection & Metacognition Series for examples.

If you want to assess student learning outside of the classroom:

- **Online discussion forum.** Pose reading or content questions online and ask students to answer and/or provide feedback on what other students have written. You can provide hints along the way and get an idea of how students are thinking about the problem to identify areas that you may need to clarify and review during class. Use the Canvas discussion forum tool or a free online question and answer platform.
- **Ungraded online quizzes.** Prepare short ungraded online quizzes on the reading or lecture to get a better grasp on what your students are struggling with. This can help you identify areas to review during your class and can help students identify for themselves what they are unsure about. Canvas has a Quiz tool, or you can use a free online quiz site such as Quizlet.

What are alternative summative assessments to consider other than exams and tests?
Whether in face-to-face, hybrid, or online, instructors may design courses that ask students to demonstrate their learning through multiple modalities (Universal Design for Learning) or assessments (e.g., research papers, written projects, essays, etc.). Below are some key considerations for thinking about course-level assessments (particularly, multiple-choice exams) in alternative ways for varied instructional environments. The following suggestions, taken from the Keep Teaching website, are also especially helpful in times of remote learning where we assume that a face-to-face or online proctoring service is not available. They are thus designed with academic integrity in mind, when assessments may be administered outside of the classroom.

Open Book exam format. This format promotes student learning and can help to neutralize the possibility that students will inappropriately rely on other resources to complete the exam by allowing them to consult other resources. Providing students opportunities to demonstrate their learning in varied ways is a more equitable and inclusive method of assessment. The following elements can be added to a traditional exam (alone or in combination):

- Add a section to the exam that requires students to give the course-related sources they used to answer each question (including page numbers, where appropriate), as well as the citation information of any other resources they used. Consider telling students they can use outside sources if they also give a well-considered recommendation as to whether the outside sources should be incorporated into the class in future quarters.
- Add a question that asks students to write a short reflection on what they learned, either about the content or about their own learning processes from the process of researching the questions.
- Have students choose one question or problem on the exam that was difficult and explain the process they went through to find the answer and/or to solve it.
- Have students choose the most interesting question or section on the exam and write a short paragraph explaining why they think it was interesting. A variation on this: Have students choose the question or section of the exam that targets information they feel is most applicable to their future careers, and explain why they feel it is valuable for them to know this information.

The "Open Book" option allows students to engage with your full exam as you originally intended, perhaps even more deeply, while incorporating an individual component that reinforces students in practicing academic integrity.

If using the **Closed-Book** format, you may find the following suggestions helpful. Consider reducing the number of single-choice answers (e.g., multiple-choice questions), in order to add:

- **Short answer questions.** Adding several short answer questions that have been tailored to information presented in lectures gives students a chance to display what they have learned. It also encourages students to maintain academic integrity by tying their responses to what they learned by attending your class.
- **A metacognition task.** Insert a section where students analyze errors on a past exam and explain the correct answer to earn a certain number of points determined in advance by the instructor. This develops metacognition, helps students improve their learning, and makes connections to students' past class performance.
- **A transformative reflection.** Provide a question asking students to write a short reflection on how the course has changed their thinking about the course topic or about a course sub-topic. This helps students become more aware of the effect your class has had on them intellectually.
- **Resource recommendations**. Have students give a recommendation for two scholarly articles, news articles, videos, or other instructional media that the students have researched, by writing a short (1-2 paragraph) explanation of how these pieces could help future students understand the course material.
- **A task applied to the field.** Have students choose a question from the exam and explain how the knowledge it tests is important when applied to the field. Make sure you have discussed applications in class, and if not, it may be helpful to let students know that you encourage innovation on this task. If application is something you have not discussed in class, you may want to modify your grading criteria to reflect this.
- **Move to an entirely short-essay exam format.** If possible, convert your multiple-choice questions to a series of questions that require students to write one-to-two-paragraph responses synthesizing course content. Tailor the questions to your course's specific content, to encourage students to produce their own work and to discourage inappropriate reliance on outside sources (i.e., plagiarism). Be sure to let students know the criteria you'll use to evaluate their responses (e.g., a rubric) before they take the exam. If students have been expecting a multiple-choice test throughout the quarter, you may want to be mindful of the effect a sudden change in format can have on students' ability to be successful on the exam, and weigh this against any changes you might make. If you feel the change is warranted, explain to students the reason for the change, and reassure them of your concern for their learning.
- **Assign an annotated bibliography**. If a traditional exam is not possible, and it serves your learning outcomes for your students, you might consider having students write an annotated bibliography in which they choose 5-10 key scholarly articles from the course readings and write a short critical summary for each, explaining what the article is about and then giving their assessment of the article's value to the field. Initially, students may think this is a difficult task, especially if they have never encountered such an assignment. Giving students a model for the task can help, and reminding students that it builds on skills they likely already possess (writing summaries, for example) can go a long way to ease their anxiety. If this is a novel task for students that is being introduced due to external circumstances affecting your course, you may want to adjust your grading criteria accordingly.
- **Assign a real-world, problem-based application task.** Give students a real-world, problem-based application of the concepts (or just a single key concept) from your course and ask them to explain they would use the information learned in your class to solve the problem. This would require students to analyze the problem and then synthesize a response to it by revisiting the concepts learned in your course and applying them to the scenario you have described. This, again, could be difficult for some students. If application is something you have not discussed in class, you may want to modify your grading criteria to reflect this.

What are some additional considerations?
When designing varied and non-traditional course assessments, you may want to keep these suggestions in mind:

- **Be transparent and communicate with students**. Explain to students why you've designed the course in this way. Let them know you view their learning as paramount, and want to give them every opportunity to succeed in your class, even when modifications are necessary. For more on transparency in teaching in learning, see the TILT framework.
- **Provide a model of the types of work you're asking from them.** If you are implementing alternative types of assessment (in contrast to the traditional tests) short answer questions, for example, give students a model of the type of question they'll receive as well as the type of response that is expected. This is especially important on the first assessment of the quarter.
- **Design your course with a balanced grading structure.** Evaluate the ways you are asking students to demonstrate what they have learned. If you are providing balance to be more inclusive, consider the weights you assign to each type of assessment.

Remember that assessing students equitably in ways that promote learning is a key part of effective teaching. Variation provides more opportunities for students to learn. The next part of the series describes a way to involve students in peer assessment.

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Grading and Assessment Series

PART 3: Peer Assessment and Review

Peer assessment is the structured opportunity for a student to provide feedback on another student's assignment. When effectively designed, it can foster students' skills to evaluate not only others' work but their own work as well. Effective self-assessment is critical for lifelong learning (Pearce, Jon, Mulder, Raoul, & Baik, Chi, 2009).

Peer assessment has many variations such as peer feedback, peer response, or peer editing. In writing classes specifically, it is commonly knows as peer review. In this document, the activity will be referred to as peer assessment with the intention that instructors more broadly apply this to classes and assignments beyond writing and to tasks encompassing assessing, not just editing.

Peer assessment can be used in a variety of classes, with a variety of assignments, and at a variety of steps. While peer review, in particular, has been an integral part of writing classes for decades, it is also helpful in other disciplines. In classes which require writing a paper, students can be taught and tasked with reviewing another's paper outline or rough draft or a segment of the paper (e.g. the introduction or the thesis statement). Transferred to the sciences, this process is also useful for lab reports, whereby students can ensure that peer reports include all parts of the scientific method, that tables and charts include requisite data, or that results are interpreted accurately. In addition to papers or lab reports, other assignments can be subject to peer assessment: class notes, project designs, poster boards, oral presentations.

Short-Term and Immediate Benefits of the Practice
Integral to any assignment are editing, revising, reviewing, and re-writing. Because these tasks are arduous, they often become an afterthought -- omitted steps in the rush to submit an assignment by the due date. Part of the difficulty of reviewing and revising is that, quite the opposite of being an afterthought, these activities require re-thinking (Flower et al., 1986). The ability to re-think one's work is a sign that one is able to study and learn at the top of Bloom's taxonomy: analyzing and evaluating (Anderson & Krathwohl, 2001).

Structured peer assessment provides the opportunity for students to examine an assignment. As students review their peers' work, they can increase their own understanding of the assignment rubric; they can improve their ability to analyze academic work; they can enhance their ability to offer and to profit by useful evaluations.

Analyzing and evaluating in the peer assessment task, require students to address more than grammatical and spelling errors. Asking peers to proofread one another's work can be helpful, but a goal of peer assessment is to enable students to grow in their ability to deeply examine their peers' and their own idea development, audience awareness, structural design, and clarity. In other classes, the purpose may be to further develop problem-solving, critical-thinking, quantitative reasoning, or any other learning objective that applies to a given assignment.

Long-term Benefits of the Practice
Peer assessment can also build students' habits of re-writing or re-working or re-shaping an assignment as well as guide them to provide feedback that helps others re-work or re-shape their assignment. Studies show that students often learn from others who operate at a similar level of learning (Hoogendoorn, 2015). Simply put, with well-structured peer assessment, students learn from each other (Boud, Cohen, & Sampson, 2014). Interestingly, other studies find that peer assessment is even more effective for academic performance than teacher assessment (Double, McGrane, & Hopfenbeck, 2020).

If they plan to pursue further studies or a career in academia, the ability to provide peer review is expected and essential. Many organizations and disciplines rely on colleagues reviewing each other's

work. Learning to review and revise contributes to our students' professional development. The skills gained from effective peer-review assignments transfer to other classes, further academic work, and professional life. In learning to respond to a peer's assignments, students learn to assess and appraise. They cultivate the skill of articulating critical, constructive judgment. In addition, students can learn how to request feedback. Structured peer assessment and review asks for substantial comments, not just "what do you think of this?" Structured peer assessment asks for targeted, specific feedback, providing a model for students. All the while, this practice equips students with skills such as teamwork and collaboration that employers value (AAC&U, 2018).

Things to Consider When Implementing Peer Assessment
A variety of options are listed below; experiment and choose what works for your students, your course goals, and your style.

- Explain the rationale and the expectations as well as the potential benefits of peer assessment.

- As with any strategy in any class, the first and critical step is to model. In the case of peer review, provide students with two writing samples of the assignment (samples that you create or samples from students in previous terms {with their consent}), one strong sample and one weak sample. Go through the review process with your class, modeling the steps.

- Peer review can be conducted online or in-person. If your class meets in-person, it is still worthwhile, after training and modeling, for students to do the peer reviews online. The online tool will put students into pairs or groups or will assign reviewers anonymously. Because of the potential anonymity, online review tools reduce students' feelings of intimidation. Some students, however, do prefer to talk in-person with their peers about their papers, and some students experience technical difficulties with online reviews (Jensen, Erin B., 2 Nov 2016).

- When assigning reviewers consider:
    - Pairs or groups? Fixed or changing reviewers? Reviewers of similar or different proficiency?
    - Online tools such as Canvas or Eli Review assign which students read which work. Online tools allow for anonymous (double blind) reviewers.

- If using a tech tool to coordinate the logistics of peer assessment, plan for an initial, low-stakes assignment so that students can become familiar with the task (how do I review a peer's assignment) and the tool (how do I upload a paper, project, report, etc.).

- Even if you are not using technology for logistics, plan for an initial, low-stakes assignment. Distribute three sample assignments: one good, one average, one poor. Evaluate them together to help students learn to articulate their reviews and feedback.

- Provide a **rubric** so that peer assessors know exactly what to look for (see Part 1 for more and *Appendix 1* for an example). Some instructors provide a copy of the rubric that will be used in grading the assignment. If you do this, make sure students know the rationale: students are not grading their peer's work. Using the rubric during a peer assessment session can help students gain familiarity with the rubric, which may benefit their own work.

- Ask peer assessors to **describe** how they see the assignment criteria applied or to **rephrase** an aspect of the assignment (i.e. the thesis statement, the introduction, main findings, etc.).

- Alternatively, provide a rating sheet, a checklist (see Figure 1 below), or a likert scale so that students can easily **rate** a paragraph or a title or a thesis statement or some other bit of the project / writing. This may be an abbreviated feedback form used in the initial stages of this activity that helps students become accustomed to providing peer review. (Note: These rating sheets or checklists can also be used for self-assessment to help students develop metacognitive skills.)

- Whatever method and review tools you used, the final and critical step is to provide a guided reflection. For example, ask students to identify the most important insight they received from their peers' feedback.

Figure 1:

CHECKLIST FOR MID-TERM ESSAY:

- ☐ **Peer-assessment**
- ☐ **Self-assessment**

✓ **PAPER IS WRITTEN EFFECTIVELY**:

☐ The paper begins with one Introductory Paragraph of about 5-7 sentences
☐ The Introductory Paragraph includes a thesis statement
Copy the thesis statement here:

Does the thesis statement include an opinion? (circle one) YES NO

Based on this thesis statement, how interested are you in reading the essay?
☐ Very interested – the thesis is original and sparked my interest
☐ Unsure
☐ Not interested – the thesis is unclear or not specific

☐ The body paragraphs support the ideas set forth in the thesis statement
☐ Claims and ideas are supported with evidence
☐ The paper logically connects the evidence/sources used to the argument being made
☐ The paper ends with a brief Conclusion (about 5-6 sentences), restating the thesis and ending broadly

✓ **PAPER AND CITATIONS ARE FORMATTED CORRECTLY**:

☐ Evidence is cited correctly in-text per ASA style
☐ Reference List is correctly formatted ASA style
☐ Paper is double-spaced with 12 point Times New Roman font with one-inch margins
☐ Paper is 4-5 pages total (not including Reference List)
☐ Paper is double-spaced with 12 point Times New Roman font with one-inch margins

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Additional Resources

- SERC (Science Education Resource Center at Carleton College (https://serc.carleton.edu/introgeo/peerreview/index.html) – resources and references for using peer review as well as examples of using peer review in science classes.
- Moore, Christina (June 6, 2016) Frame Your Feedback: Making Peer Review Work in Class in *Faculty Focus* https://www.facultyfocus.com/articles/teaching-and-learning/frame-feedback-making-peer-review-work-class/ accessed June 2020.
- Canvas (https://community.canvaslms.com/t5/Instructor-Guide/How-do-I-use-peer-review-assignments-in-a-course/ta-p/697) – offers an online tool within the learning management system to facilitate peer review (managing the distribution of students' work).

- Eli Review (https://www.elireview.com) – A fee-based, ed-tech tool that manages the distribution of students' work as well as provides research, objectives, and strategies for instructors and for students.
- "Using Peer Review," Science Writing Resources for Learning. The University of British Columbia, Vancouver Campus, https://scwrl.ubc.ca/ accessed June 2020.

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Writing Effective Test Questions Series

PART 1: Basic Principles for Designing Effective Exam Questions

Tests and quizzes are among the most prevalent forms of assessment instruments in use on college campuses. Whether **summative** (assessment of student learning at the conclusion of a unit, course, or program) or **formative** (assessments meant to *provide* timely and effective feedback during the term or class), tests and quizzes represent a key form of information for students and instructors about learning in the classroom (McKeachie & Svinicki, 2013). Ultimately, the goal of any assessment should be to *promote* students' learning of course content and improve students' performance in the classroom (e.g., Handelsman, Miller, & Pfund, 2007; McKeachie & Svinicki, 2013). Therefore, assessment design is of paramount importance. This resource series will provide you with strategies and suggestions for writing effective test questions and designing assessment instruments that will enable you to better monitor your students' progress throughout the term.

Best practices for assessment design
The first step in designing equitable and transparent approaches to assessing student learning is to examine the constructive alignment of the course: "In this model, each individual assignment within a specific course hits on particular course outcomes in a vertical relationship; the learning expressed in the course outcomes is related to the assignments, and expectations for course-embedded assignments are related to course activities that allow students to develop learning prior to assessment" (Jankowski & Marshall, 2017, p. 57).

There are a few skills that instructors need when writing tests questions (Nilson, 2016; Suskie, 2010):

- A thorough grasp of the subject matter and the content meant to be assessed
- A clear understanding of the instructional goal for the course and/or unit
- An ability to write both clearly and concisely when needed

Additionally, effective exams exhibit four main characteristics (CRLT, "Framework," n.d.). Specifically, exams should be:

- **Valid**, with answers that are aligned with the learning objectives of the course, and that provide instructors with "useful information about student learning,"
- **Reliable**, with test questions designed to "consistently measure student learning and distinguish between levels of achievement,"
- **Recognizable** to students, in that prior instruction (both inside and outside of class) "has prepared students to expect and perform well on required tasks," and
- **Realistic**, so that students can complete the required tasks of the exam in a realistic amount of time, employing a reasonable amount of effort.

Here are a few general best practices for designing effective tests and quizzes:

Strategies	Explanation	Teaching Suggestions
Develop clear scoring keys, rubrics, and/or other guidelines for yourself and your TAs	Clear scoring keys, grading criteria, and/or rubrics are essential to creating equitable opportunities for students to demonstrate their learning; to that end, use a "norming" process to increase consistency across graders (McKeachie & Svinicki, 2013) as well as reliability of the instrument. Clearly explain your exam expectations to students (Nilson, 2016).	It is important that you "norm" yourself and your TAs to the rubric. Additionally, to ensure that students understand your expectations, Handelsman, Miller, & Pfund, (2007) suggest providing students with copies of the grading criteria/rubrics along with the test or study guide, if possible (for example exam rubrics, see below).

Test students early and often	Testing students early and often reduces the impact of a single poor performance on a student's cumulative grade, while also giving them valuable feedback that they can use to improve their outcomes later on, and you valuable information about students' progress (Handelsman, Miller, & Pfund, 2007; McKeachie & Svinicki, 2013; Nilson, 2016). McKeachie (2013) also suggests gradually reducing the number of assessment tasks throughout the term, so that students learn to consider course content beyond just studying for an exam.	Rather than relying on 1-2 midterms and a final, consider employing smaller weekly or biweekly exams. This will spread the time you and your TAs spend designing and grading exams more evenly throughout the course, especially if you develop a bank of test questions to pull from (see below). Additionally, research has shown that this model improves students' outcomes and retention in courses (Myers & Myers, 2007).
Link test questions to specific course learning outcomes	The type of question you employ should depend on the kinds of thinking you're asking students to do (McKeachie & Svinicki, 2013). Therefore, an effective exam will employ a variety of different question types, so as to provide students with the opportunity to demonstrate their grasp of course content in a variety of different ways.	Consider consulting *Bloom's Taxonomy* to help you identify the types of thinking you're interested in having students engage in (Freeman, Haak, & Wenderoth, 2011; O'Neill, Birol, & Pollock, 2010). Barbara Mills, Test Specialist with CEE, notes that multiple-choice questions can be useful when testing on a large body of material, and for a range of Bloom's levels (see also, Clegg & Cashin, 1986). Constructed response questions are also useful when asking students to analyze and synthesize course information (see Parts 2 & 3 for more on multiple-choice and constructed response test items).
Preview test expectations	It can be helpful to preview the test structure with students a few days prior to the exam, so that they can study with test conditions in mind. This can be done in class, through a Canvas message, on a study guide, or through other means.	For example, notify students of whether notes, calculators, dictionaries, books, or other materials are admissible prior to the exam so that they can study with or without these materials.
Give clear, detailed written instructions on all tests	Make sure all key, relevant exam instructions are clearly written on the exam itself, and that students have time or the ability to ask questions if necessary.	For example, Nilson (2016) suggests notifying students of how many questions of each type there are and where their responses should be recorded, how much total time is allotted for the exam, as well as recommended time limits for each section, and how many points will be awarded for each test item.
Develop a "bank" of questions, in a variety of formats, that you can draw from	Developing a "bank" of test questions that you can pull from and adapt when designing assessment instruments can make the process of test design both easier and quicker.	Try developing several test questions immediately after you've covered the requisite material in class, when it is fresh in your mind (Nilson, 2016; Weimer, 2014). Doing this with books and notes closed can also help ensure that your questions don't focus on minute details. Nilson (2016) also suggests employing a variety of

		question types to provide multiple pathways for students to demonstrate knowledge, and so that students can feel more comfortable with the test format.
Create more than one version of an exam	Creating several versions of an exam to use within a single term, and/or over several terms, is key for avoiding cheating or other academic integrity violations.	To prevent cheating, distribute different versions of the exam to each course section, and/or alternate from desk to desk so that students sitting next to each other have different versions (McKeachie & Svinicki, 2013). Also, developing a "bank" with several versions of the same question using different examples, scenarios, or number sets can make it easier to create several versions to hand out.
Carefully consider what is a realistic amount of time and effort for students to complete the assessment task	Asking too many questions might increase students' anxiety and cause them to perform in ways they might not normally (McKeachie & Svinicki, 2013). Additionally, different types of questions will require different lengths of time for students to complete. For example, international or multilingual students may need more time for questions that require a lot of reading.	Consider asking your TAs for their perspective on what is reasonable, in terms of the amount of time to budget per question, and how many questions to ask on the exam. Barbara Mills notes that "some test designers say to allow 45 seconds per question, but this depends on how much reading and how much calculating is required." She also suggests having your TAs or another instructor take to test, and then budgeting at least double that time for your students.

Additional resources

- For example exam rubrics, see Handelsman, Miller, & Pfund, 2007; Nilson, 2016; Tierney & Simon, 2004; Walvoord, 2010.
- At UC Davis, instructors can contact Barbara Mills, Testing Specialist (bjmills@ucdavis.edu) in the Center for Educational Effectiveness for support in designing test questions.
- This resource was designed with the help of Kara Moloney, PhD, Assessment Lead in the Center for Educational Effectiveness (kmoloney@ucdavis.edu).

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Writing Effective Test Questions Series
PART 2: Writing Selected Response Exam Questions

Selected vs. Constructed Response Test Questions
Selected response test questions are those to which there is typically a single correct answer, and comprise fill-in-the-blank, true-false, multiple choice, and/or matching tasks. Nilson (2016) notes that these questions are good for assessing students' ability to remember and understand course concepts and materials, but cannot "measure students' abilities to create, organize, communicate, define problems, or conduct research" (p. 291). Selected response questions are easily scorable using a machine like a Scantron, which makes them seem like a good choice in large-enrollment courses.

Constructed response questions ask learners to *generate* (or construct) an answer. Constructed response items can measure knowledge, comprehension, application, perspective, and/or self-awareness. Examples of constructed response assessment tasks include: listing, defining, providing reasoning, short answer questions, and essay exams. There primary types of constructed response, restricted and extended, are described below.

Constructed Response Type	Sample Prompts	Pros	Cons
Restricted	Provide reasons for... List... Define ...	Allows for faster grading	Does not measure higher-level thinking.
Extended	During this unit, we have discussed both the evolution of American literature and the changing political climate of the twentieth century. Analyze these two dimensions of life in America, citing instances where literature and politics may have influenced each other. Describe those influences in specific terms. In planning your response, think about what we learned about prominent novelists, political satirists, and prominent political figures of the last half of the century. (5 points per instance, total = 15 points).	Measure complex, interrelated skills such as synthesis, evaluation, and expression; as well as knowledge mastery and reasoning proficiency.	Difficult to write well. Challenging to score equitably; requires written English proficiency.

This resource will focus on suggestions for designing multiple choice questions (MCQs). For strategies for designing other types of selected response assessment questions, see Nilson (2016).

Strategies for writing multiple choice test questions
Research suggests that while well-designed multiple choice questions (MCQs) can be used to assess multiple dimensions of Bloom's Cognitive Process Domains, most MCQ tools focus on lower-order skills like remembering and understanding (Momsen et al., 2010). However, well-constructed MCQs can be used to assess higher-level thinking such as apply or analyze (Clegg & Chasin, 1986). One example would be to ask students to apply course concepts through realistic problems or scenarios (see below; see also: Suskie, 2010). For example, Crowe, Dirks, & Wenderoth (2008) developed the "Blooming Biology Tool" to help instructors align their assessments with higher order teaching activities. Nilson (2016) and Suskie (2010) note that effective MCQs must be phrased carefully to avoid accidentally steering a prepared student away from the correct response, or alternately steering an unprepared student to the correct answer. Following are suggestions for designing effective MCQs:

Strategies	Explanation	Teaching Suggestions
Make sure the statement or question is clear and concise.	Lengthy, unclear multiple choice questions can easily direct even prepared students to the incorrect answer, and produce considerable anxiety and frustration for students (Suskie, 2010).	Barbara Mills, Test Specialist with CEE suggests avoiding overlapping answers (a particular issue when numbers are the answer choices) and numerical answers that are too close (such as those distinguished only by rounding). Additionally, to avoid overlap, it's best to use mutually exclusive response options, and to include only one correct, clearly best answer.
Use consistent and clear language	Write a simple, straight-forward question or prompt. Use language consistently. Be concise. Avoid turning your content test into a test of reading comprehension. Give students the opportunity to focus on the task itself and not on puzzling through the question (Suskie, 2010).	Examples of inconsistent language usage include: alternating verb tenses within the question and or using different pronouns in the response choices from those in the question stem (see below for example).
	It's important to write items that are clearly written, precise, and accessible. To do this: use sentence structures and vocabulary that are appropriate for the audience; eliminate difficult or unclear terminology (OR undefined acronyms!); and avoid potential cultural and/or linguistic issues.	Read each stem out loud, followed by each response. *Listen* for language "bumps" and address them. Also, consider asking your TAs or another instructor to read through your questions for clarity.
Tie questions to specific learning goals for the course/unit	An intentionally aligned instructional approach "provides students opportunities to synthesize, practice, and develop increasingly complex ideas, skills, and values" (Allen, 2004, p. 40). In addition, if teaching and learning activities, including modes of instruction and assignment design, are not aligned to the goals set for students, instructors will be unable to demonstrate the excellent work in teaching that they do (Jankowski, 2017).	All assessments in a course should derive directly from the course learning outcomes. Remind students *throughout the course* to use the course outcomes as reference points for their own learning.
	Begin with the course learning outcomes to ensure that assessment activities are directly aligned to your goals for student learning. Design test questions that assess what students should be learning in your course (Handelsman, Miller, & Pfund, 2007; McKeachie & Svinicki, 2013; Suskie, 2010).	Zimmaro (2004) suggests avoiding asking about trivial information or unimportant facts, as doing so can lead to further test anxiety when students don't know what information is actually important.
Employ "stimulus-based" multiple choice questions as a way to tie the assessment to interpretive or	Nilson (2016) describes these items as a series of multiple choice questions corresponding to a realistic stimulus like a text passage, table, graph, image, equation, description of an experiment or short case example, etc. For an	When designing these types of questions, make sure to give students prior practice (in class, on homework, or on a study guide) in interpreting the types of stimuli you intend to use on the exam. But, make sure the scenarios and examples are new to students (Suskie,

applicative thinking skills.	example of this type of question, see "Example Questions" below.	2010). Additionally, the longer or more complex your stimulus is, the more questions you should include in your corresponding series.
Avoid assigning "all of the above" and/or "none of the above" options as the correct response	Most test designers (e.g., Haladyna, 2004; Nilson, 2016; Suskie, 2010) agree that when "all of the above" or "none of the above" options are the correct response, this makes it easier for students to select the correct answer without actually knowing the material. Barbara Mills also suggests avoiding choices such as "A & C" or "B & D," as these can also make it harder to distinguish between students who know the material and those who don't.	Nilson (2016) suggest using "all of the above"/"none of the above" options as distractors, as this can make a question more challenging to students, and ensure that they actually need to know the material to find the correct response. You can also use common mistakes, misconceptions, or mis-associations that students make (Suskie, 2010), or alter elements of or variables within the correct response to design distractors.
Avoid using negative phrasing, or clearly signal the negative word to students.	Using negative phrasing can confuse a student, even if they know the material, especially if they are short on time (Clegg & Cashin, 1986; Haladyna, 2004; Suskie, 2010).	For example, "Under which of the following conditions is X not true?" can be easily misread by students. A better version would be "Under which of the following conditions is X true?" Additionally, highlight, bold, all-cap, or underline negative words to signal to students what is being asked (e.g., Zimmaro, 2004). For example, "Which of the following countries is **not** on the UN Security Council?"

Example Questions
Examples in this section come from Nilson (2016), and this resource from the Vanderbilt University Center for Teaching.

Item responses use inconsistent language and negative phrasing
Which of the following is not true about mitochondria? *a: They contain DNA* *b: Mitochondria made some of their own proteins* *c: They are static* *d: none of the above* The negative phrasing can be easy for students to miss, especially if they are worried about time. Additionally, the phrasing for option "b" is inconsistent from the rest of the questions as it uses past tense (while the other options are phrased in the present) and it uses the word "Mitochondria" instead of the pronoun "they." A better phrasing would be: *Which of the following is **not** true about mitochondria?* *a: They contain DNA* *b: They make some of their own proteins* *c: They are static* *d: none of the above*
Example of "stimulus-based" test items
Two researchers were studying the relationship between amount of sleep each night and calories burned on an exercise bike for 42 men and women. They were interested if people who slept more had

more energy to use during their exercise session. They obtained a correlation of .28. With a two-tailed probability of .08, and the alpha was .10.

What is the correct statistical null hypothesis?
a: There is no correlation between sleep and energy expended.
*b: rho equals zero.**
c: R equals zero.
d: rho equals r.

What conclusions should you draw regarding the null hypothesis?
*a: Reject**
b: Accept
c: Cannot determine without more information. (Nilson, 2016)

For this stimulus-based question, the test designer wrote out a research scenario for a statistics class, then designed a series of questions referencing several different course concepts (i.e., the null hypothesis). (For the full set of questions related to this scenario, see Nilson, 2016)

Additional resources

- At UC Davis, instructors can contact Barbara Mills, Testing Specialist (bjmills@ucdavis.edu) in the Center for Educational Effectiveness for support in designing test questions.
- This resource was designed with the help of Kara Moloney, PhD, Assessment Lead in the Center for Educational Effectiveness (kmoloney@ucdavis.edu).

Citation

Center for Educational Effectiveness [CEE]. (2018). Writing Effective Test Questions Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT

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Writing Effective Test Questions Series

PART 3: Writing "Constructed Response" Exam Questions

Multiple choice tests can yield useful information about students' knowledge of course content. However, these tests are invalid measures of learners' capacity to engage in higher-level cognitive processes, such as analysis, evaluation, and/or creation. As noted in Part 2, constructed response questions are more effective than selected response items at creating opportunities for students to demonstrate their reasoning, argumentative, and problem-solving skills or their ability to apply course concepts and content in authentic, real-world situations. However, because these responses require more time to generate (students) and assess (instructors), Nilson (2016) suggests using constructed response questions sparingly if possible, particularly "when the learning outcomes you are assessing requires students to generate, as opposed to select, and answer. If your outcome calls only for selection, then you might as well use [selected] items" (p. 299).

Designing effective constructed response questions
Including constructed response questions on an exam with selected response items enhances students' opportunities to accurately demonstrate their learning. Responses to these types of questions are usually structured individually by students and are typically several sentences or several paragraphs in length, depending on the question asked or task assigned. Additionally, a well-designed constructed response question should invite several different possible answers or responses. Here are a few suggestions for how to design constructed response questions:

BEFORE you write a question:

1. Know what you hope students will be able to demonstrate.
2. Write a prompt (or question) that describes a single, complete, and novel task
3. Devise clearly articulated evaluation criteria

Strategies	Explanation	Teaching Suggestions
Clarify expectations to ensure transparency and equity	Nilson (2016) notes that each grader may prioritize different criteria, which makes having a clear rubric for graders to reference particularly important. Having clear rubrics and grading criteria is essential to ensuring that tests are graded fairly and with consistency between evaluators (McKeachie & Svinicki, 2013).	Nilson (2016) suggests discussing grading criteria for constructed response questions with the TAs and suggesting that they norm their evaluations together to ensure consistency before grading. Additionally, she suggests outlining these criteria to students prior to the exam, so that they can better prepare (for example exam rubrics, see below).
Design specific questions that ask for specific responses	Unspecific questions can lead to long "kitchen sink" responses, or conversely, very short responses as students attempt to puzzle out what your expectations are (McKeachie & Svinicki, 2013). They may also interpret the question very differently from you, especially if your question is unclear.	Nilson (2016) suggests identifying key ideas or concepts students should reference in their responses, if possible. She also suggests avoiding simple interrogative words like "how," "what," or "why," and instead using descriptive verbs like "describe," "explain," or "evaluate." For example, "*Describe three ways* that social integration could break down in the modern world, according to Durkheim. Then *assess* how closely *each one* applies to the United States today" [emphasis original] (Nilson, 2016, p. 300).

Make your expectations clear	Prompts should align with course learning outcomes *and* the assessment criteria you provide to students. Handelsman, Miller, & Pfund, (2007) suggest providing students with copies of the grading criteria/rubrics along with the test or study guide, if possible.	Nilson (2016) suggests identifying the ideas, concepts, or other course material you want students to reference in their responses. For example, you could ask students to apply a course concept to a real-world scenario or provide two passages with two scholars perspectives on a particular theory or idea covered in your course, and ask students to compare. For example, "Read the two passages above from Michel Foucault and Jacques Derrida. Then, explain three key differences between these two theorists' conceptions of the historicity of thought."
Use short answer questions in place of an essay	Well-constructed and polished academic essays take time to write. If the purpose of the writing task is to ascertain whether students can engage meaningfully with course content, create assessment opportunities that students are actually able to accomplish.	Be intentional about assigning in-class writing tasks. Keep in mind that the timed nature of the task limits the validity of the assessment. In-class essay exams leave students with little opportunity for revision, which is essential to writing effectively. Therefore, expecting students to produce academic prose in a timed-writing sets everyone up for potential failure. Consider employing several short answer responses that call for only a few sentences, rather than longer essay responses that call for several paragraphs (McKeachie & Svinicki, 2013). For example, you could provide a passage or scenario for students to read, and then assign several short answer questions regarding that passage.
Be realistic about syntax mechanics (e.g., spelling or sentence-level issues)	Due to the timed nature of in-class written exams, instructors need to accept that, for most learners, sentence-level writing issues (e.g., misspellings, punctuation errors) will occur. With limited time, most writers will focus on conveying their grasp of course content, and don't always have time to edit. Take this into consideration when developing and explaining the assessment criteria for in-class writing exams.	To ensure validity of the assessment, focus on the *content* of students' responses, rather than sentence-level issues—unless sentence-level issues significantly impede students' expression of what they know. Another option is to assign constructed response questions as part of take-home exams, so that students have time to carefully proofread their responses. If you choose the latter option, let students know ahead of time that the expectations include appropriate control of syntax and mechanics.

Additional resources

- For example exam rubrics, see Handelsman, Miller, & Pfund, 2007; Nilson, 2016; Tierney & Simon, 2004; Walvoord, 2010.
- At UC Davis, instructors can contact Barbara Mills, Testing Specialist (bjmills@ucdavis.edu) in the Center for Educational Effectiveness for support in designing test questions.
- This resource was designed with the help of Kara Moloney, PhD, Assessment Lead in the Center for Educational Effectiveness (kmoloney@ucdavis.edu).

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REFLECTING ON TEACHING EFFECTIVENESS

Effective Teaching

Effective Teaching Series

PART 1: What Is It and Why Does It Matter?

As set forth in the UC Academic Personnel Manual (APM) – 210, "Teaching – clearly demonstrated evidence of high quality in teaching is an essential criterion for appointment, advancement, or promotion." In appraising teaching competence, significant types of evidence of teaching effectiveness may include: self-evaluation of one's own teaching effectiveness, evaluation by other faculty members, and development of new and effective techniques of instruction, including those meeting the needs of underrepresented groups.

Research on teaching and learning demonstrates that clear course structure and teaching clarity increases student motivation and persistence and improves performance and grades, with particular impact on first-generation and low-SES students (Blaich & Wise, 2014; Pascarella & Blaich, 2013; Wang et al., 2015). More specifically, Roksa et al. (2017) found that nearly two-thirds of the effect of clear and organized instruction on academic performance is accounted for by three mechanisms: 1) faculty interest in teaching and student development; 2) academic engagement; and 3) academic motivation. Furthermore, less academically prepared students benefited more from exposure to clear and organized instruction (Roksa et al, 2017).

This series on Effective Teaching looks at a model for learning (part 1), varied dimensions of effective teaching (part 2), and ideas for self-reflection and peer collaboration (part 3). We begin with discussing how students learn and what instructors can do to support high levels of learning.

How do Students Learn?
Ideally, effective teaching meets the learning needs of each individual student. As instructors, we aim to help all of our students learn and succeed. By basing our teaching on the following principles of *how* students learn, we are best equipped to support diverse populations and varied class sizes:

- **Students experience deeper learning and retain more information when they are *actively engaged* in the learning process**. Student engagement may include interaction between the student and the instructor, between the student and content, and between the student and their classmates. It may involve activities in small groups or pairs, individual student reflection or writing, small or large group discussion, problem solving, games, case studies, debates, role playing, and more.

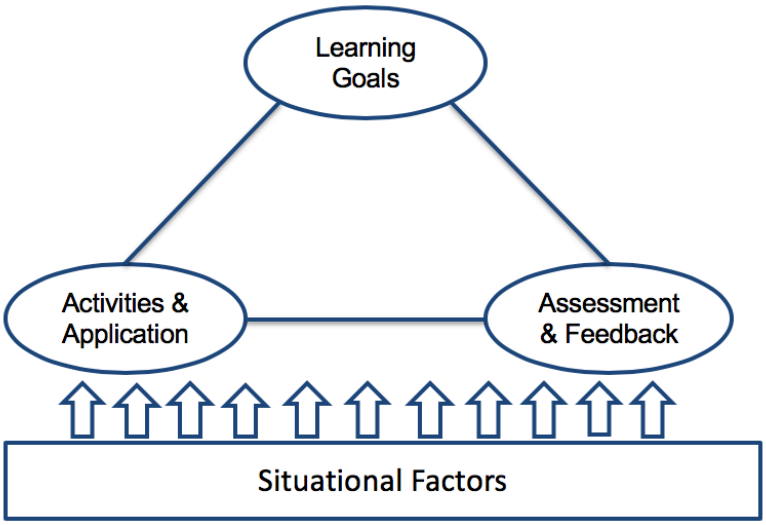
- **Students learn best through *differentiated practice*.** Students benefit when they can learn using many parts of the brain, and by engaging with what they are learning in a variety of ways. All students benefit when we create opportunities for them to interact with material and demonstrate their knowledge in different manners. Depending on the given content, some modes of learning can be more effective than others. Provide opportunities for students to interact with the material visually, verbally, and kinesthetically. Learning about and reinforcing content through differentiated practice benefits all learners.

- **Students learn through *guided practice*.** Learning something new requires guidance and a lot of practice. As an instructor, you can provide students with scaffolding that allows them to build upon previous understanding to process, integrate, and store new knowledge alongside pre-existing knowledge. Scaffolding refers to assist and or guidance that helps students achieve outcomes that they may not be able to accomplish independently at first. It may be helpful to follow the "I do – we do – you do" model: (1) demonstrate or introduce the process, (2) work through or solve an example with your students together, providing guidance and feedback, and (3) have students complete the task on their own. This model provides scaffolding, repetitive practice, and eventual independent accomplishment.

- **Students need *ongoing feedback* about their learning**. Feedback is essential for learning, yet students are often only provided feedback on what they know and don't know on formal, graded assignments. Feedback may come from instructors, peers, and self-assessment, and is most helpful when provided frequently and informally. Frequent informal feedback on student understanding encourages and rewards meaningful learning, helps prepare students by making them aware of what they do and do not know, and can help you know where your students stand.

Integrated Lesson Design
A lesson plan provides a roadmap for the instructor of what students will learn in class and how class time will be used effectively to achieve learning. Traditionally, lesson planning starts with the content, which focuses attention and effort on what the instructor will teach and how they will teach it. In contrast, a more integrated design – a learner-centered approach to lesson planning – begins with an examination of situational factors and works "backwards" from traditional planning (Figure 1).

Figure 1: Integrated Design



adapted from Fink, D. L. (2003)

1. Consider situational factors. Potentially critical factors can inform course design. Begin with the context of of the teaching and learning situation. Fink (2005) suggests answering the following questions:

- How many students are in the class?
- Is the course at the lower division, upper division, or graduate level?
- How long and frequent are the class meetings?
- Will the class be delivered live, online, in a laboratory, etc.?
- What physical elements of the learning environment will affect the class?

Next, it is important to identify characteristics of the learners – life situations, professional goals, prior knowledge and experiences, expectations of course. Coupled with consideration of our own beliefs and values of teaching and learning and our unique strengths and weaknesses, we can use this situational factors to inform the design process.

2. Define learning outcome(s) and prioritize which are most important. Write concrete and measurable learning outcome(s) that describe what students will learn and be able to do by the end of a specific lesson. For example, "By the end of the class, students will be able to apply their Sociological Imagination and analyze social problems." Or "By the end of the unit, students will be able to identify stages in the engineering design process." There are several benefits to starting with learning outcomes, first, formulating learning outcomes will help you focus what material you will cover during class. Second, learning outcomes ensure we know what type of understanding we are checking for and that the activities we are doing are purposeful and can help students learn what we want. Third, clearly articulated learning outcomes communicate expectations to students about what they should be able to do by the end of the lesson, a class, etc. Students may refer back to these learning outcomes to prepare for exams or projects.

3. Decide the assessment(s) you will use to check for understanding and achievement. After you have written your learning outcome(s), determine how students will demonstrate understanding and accomplishment of the outcomes. For example, returning to the previously mentioned learning outcome (By the end of the class, students will be able to apply their Sociological Imagination and analyze social problems), you may employ one-sentence summaries or require students to use a graphic organizer to ensure that students understand the sociological imagination and can analyze varied problems through its lens.

4. Determine the classroom activities that you will use to help students acquire the skills and knowledge needed to successfully demonstrate master of the learning outcome(s). Activities should engage learners with the content, with peers, and with you. For example, if you want learners to complete a pro and con grid or a one-sentence summary about the benefits and challenges of using rubrics for grading by the end of your lesson, you may have students free write on prior experiences grading with and/or without rubrics, practice grading a sample assignment with and without a rubric, or work in small groups to brainstorm benefits and challenges together.

Finally, check for alignment and integration by ensuring that assessments and activities will help students achieve the learning outcome. These integrated components work to support and reinforce each other.

Additional Readings & Resources

- UC Academic Personnel Manual 210: Review and Appraisal Committees for Appointment and Promotion, see Section 210–1–d
- For information and resources about assessment process Student Learning Outcomes Assessment

Citation

Center for Educational Effectiveness [CEE]. (2019). Effective Teaching Series. Just-in-Time Teaching Resources. Retrieved from http://cee.ucdavis.edu/JITT

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Effective Teaching Series

PART 2: Framework for Effective Teaching

Effective teaching can be conceptualized along five dimensions: (1) creating an engaging and inclusive environment, (2) designing and organizing the course, (3) planning instruction and learning activities, (4) assessing student learning, and (5) reflecting on teaching effectiveness. Within different situational contexts, each of these dimensions is supported by varied best practices. Taken together, the dimensions and practices can impact student learning.

This part of the series describes all of the dimensions and a range of best practices that support each. The best practices section begins with those identified in the Academic Personnel Manual (denoted with an "APM") and are supplemenented by more evidence-based practices. This section is followed by a list of a Just-in-Time Teaching (JITT) strategies, each of which provides a snapshot of the topic, data that inform it, teaching strategies, student comments, and reflection questions. This same information is also organized into a JITT Matrix (see Appendix 2A). For a deeper dive into each dimension, see the complete JITT Guide, a comprehensive resource that contains additional tools, templates, and citations that support the strategies. Lastly, a Framework of Effective Teaching, organizes the dimensions along with a corresponding continuum of practice, from developing to proficient to advanced (see Appendix 2B).

Creating an Engaging & Inclusive Environment
Instructor designs and implements comprehensive curriculum with multiple and varied instructional strategies and resources to support in-depth studies of content and promote high levels of student understanding and engagement. S/he facilitates a learning environment that is inclusive, respectful, rigorous, and responsive to student achievement.

Best practices that support this dimension:

- Awakening in students an awareness of the relationship of the subject to other fields of knowledge [APM]
- Creating an academic environment that is open and encouraging to all students, including development of particularly effective strategies for the educational advancement of students in various underrepresented groups [APM]
- Exhibiting spirit and enthusiasm that vitalizes learning and teaching [APM]
- Connecting learning to students' prior knowledge, backgrounds, life experiences, and interests
- Connecting subject matter to meaningful real-life contexts
- Creating a physical or virtual environment that promotes student learning, reflects diversity, and encourages constructive and productive interactions among students
- Developing a rigorous learning environment with high expectations and support for all students
- Establishing and maintaining learning environments that are physically, intellectually, and emotionally safe
- Using knowledge of students to engage them in learning

For a *snapshot of strategies* (research, data, explanation, and examples):

- Charged discussions as learning opportunities
- Encouraging student motivation
- Implicit bias
- Inclusive practice
- Microaggressions and microaffirmations
- Student wellbeing
- Supporting first-generation students
- Supporting transfer students

Designing & Organizing the Course
Instructor applies in-depth knowledge of teaching pedagogies to interconnect effective instruction, learning goals, and assessment within and across disciplinary content areas.

Best practices that support this dimension:

- Demonstrating a command of the discipline and subject [APM]
- Organizing material and presenting it with force and logic [APM]
- Addressing needs of multilingual learners and international students to provide equitable access
- Applying knowledge of student development and proficiencies to ensure student understanding of the disciplinary content
- Organizing course to facilitate student understanding of content
- Using and adapting resources, technologies, and instructional materials to make content accessible to all students
- Utilizing instructional strategies that are appropriate to disciplinary content

For a *snapshot of strategies* (research, data, explanation, and examples):

- Active learning classrooms
- Hybrid and online learning

Planning Instruction & Learning Activities
Instructor plans instruction flexibly utilizing a repertoire of instructional practices to differentiate instruction as informed by ongoing and multiple assessments.

Best practices that support the Planning Instruction and Learning Activities dimension:

- Arousing curiosity and stimulating students to creative work [APM]
- Encouraging high standards [APM]
- Fostering student independence and capability to reason [APM]
- Adapting instructional plans and materials to meet the assessed learning needs of all students
- Communicating learning objectives
- Developing and sequencing long-term and short-term instructional plans to support learning
- Establishing and articulating goals for student learning
- Planning instruction that incorporates appropriate strategies to meet the learning needs of all students
- Using knowledge of students' academic readiness, cultural background, and individual development to plan instruction

For a *snapshot of strategies* (research, data, explanation, and examples) on Planning Instruction and Learning Activities:

- Activating your lecture
- Covering content
- Designing effective writing assignments
- Engaged reading
- Facilitating laboratory activities
- Library anxiety
- Reflection and metacognition
- Strategies for teaching international learners
- Strategies for teaching multilingual learners

Assessing Learning
Instructor utilizes a wide range of assessments strategically, systematically, and flexibly throughout instruction to identify student learning needs and guide ongoing adjustments in instruction that maximize student learning.

Best practices that support the Assessing Learning dimension:

- Applying knowledge of the purposes, characteristics, and uses of different types of assessments

- Collecting and analyzing assessment data (direct and indirect evidence of learning) from a variety of sources to inform instruction
- Reviewing data (e.g., course-level demographic data, year-to-year data, individual-level assessment data) to monitor student learning
- Using assessment data to establish learning goals and to plan, differentiate, and modify instruction
- Involving all students in self-assessment, goal-setting, and monitoring progress
- Integrating available technologies to assist in assessment, analysis, and communication of student learning

For a *snapshot of strategies* (research, data, explanation, and examples) on Assessing Learning see:

- Addressing plagiarism
- Effective feedback
- Test questions

Reflecting on Teaching
Instructor analyzes and integrates information from a wide range of sources to expand skills of collaboration and reflection as a habit of practice and to impact teacher effectiveness and student learning.

Best practices that support the Reflecting on Teaching dimension:

- Exhibiting continuous growth in the subject field [APM]
- Collaborating with colleagues and the broader community of learning to support teaching effectiveness and student learning
- Establishing professional goals and engaging in continuous and purposeful professional growth and development
- Reflecting on teaching practices in support of student learning

For a *snapshot of strategies* (research, data, explanation, and examples) the Reflecting on Teaching:

- Reflection and metacognition (also see part 1 in JITT Guide)

Additional Readings & Resources

- UC Academic Personnel Manual 210: Review and Appraisal Committees for Appointment and Promotion, see Section 210–1–d
- For information and resources about assessment process Student Learning Outcomes Assessment

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Effective Teaching Series

APPENDIX 2A: JITT MATRIX

HOW INDIVIDUAL JITT TOPICS SUPPORT DIMENSIONS OF TEACHING	■ PRIMARY SUPPORT	■ SECONDARY SUPPORT

	DIMENSIONS				
JUST-IN-TIME TEACHING TOPICS	**CREATING**	**DESIGNING**	**PLANNING**	**ASSESSING**	**REFLECTING**
CREATING AN ENGAGING & INCLUSIVE ENVIRONMENT					
Charged discussions as learning opportunities	■				
Encouraging student motivation	■				
Implicit bias	■		■		■
Inclusive practice	■		■		
Microaggressions and microaffirmations	■				
Student wellbeing	■				
Supporting first-generation students	■		■		
Supporting transfer students	■				
DESIGNING & ORGANIZING THE COURSE					
Active learning classrooms		■	■		
Hybrid and online learning		■			
Internationalizing the curriculum (forthcoming)		■			
PLANNING INSTRUCTION & LEARNING ACTIVITIES					
Activating your lecture		■	■		
Strategies for covering content			■		
Designing effective writing assignments			■		
Engaged reading			■		
Facilitating laboratory activities			■	■	
Library anxiety			■		
Reflection and metacognition			■	■	■
Strategies for teaching international students	■		■		
Strategies for teaching multilingual learners		■	■		
ASSESSING STUDENT LEARNING					
Addressing plagiarism		■		■	
Effective feedback			■	■	
Grading strategies (forthcoming)				■	
Test questions				■	
REFLECTING ON TEACHING EFFECTIVENESS					
Effective teaching					■

Framework of Effective Teaching Objectives:

1. Illuminate the multiple dimensions that contribute to effective teaching practice.
2. Encourage use of the rubric as a tool for self-evaluation, reflection, and peer collaboration. Can be customized for departmental priorities.
3. Connect instructors to resources for professional growth and for organization in cases for advancement and promotion.

Effective Teaching Series

APPENDIX 2B: Framework & Continuum

As per **Academic Personnel Manual 210-1-d**, significant types of evidence of teaching effectiveness may include:

- **Self-evaluation** of own teaching effectiveness
- Opinions of **other faculty members**, particularly if based on class visitations
- **Development of** new and **effective techniques** of **instruction**, including techniques that meet the needs of students from groups underrepresented.

	DEVELOPING PRACTICE	PROFICIENT PRACTICE	ADVANCED PRACTICE
MAINTAINING AN EFFECTIVE & INCLUSIVE ENVIRONMENT	Explores use of additional instructional practices to teach the curriculum and support student understanding and engagement. Guides the development of a respectful learning environment focused on achievement.	Implements the curriculum using a variety of instructional practices and supplemental resources selected to improve student understanding and engagement. Maintains an inclusive, respectful, and supporting learning environment in which all students can achieve.	Designs and implements comprehensive curriculum with multiple and varied instructional strategies and resources to support in-depth studies of content and promote high levels of student understanding and engagement. Facilitates a learning environment that is inclusive, respectful, rigorous, and responsive to student achievement.
DESIGNING & ORGANIZING THE COURSE	Demonstrates knowledge of teaching as discrete skills and pedagogies. Expands knowledge of related elements of effective instruction, learning goals, assessments, and content.	Utilizes knowledge of pedagogies to make connections between elements of effective instruction, learning goals, assessments, and disciplinary content.	Applies in-depth knowledge of teaching pedagogies to interconnect effective instruction, learning goals, and assessment within and across disciplinary content areas.
PLANNING INSTRUCTION & LEARNING ACTIVITIES	Plans lessons using expanded understanding of curriculum, related materials and resources, and assessments.	Plans differentiated instruction using a variety of adjustments and adaptations to lessons.	Plans instruction flexibly utilizing a repertoire of instructional practices to differentiate instruction as informed by ongoing and multiple assessments.
ASSESSING STUDENT LEARNING	Develops understanding of assessment and uses data to inform student progress.	Utilizes a variety of assessments that provide targeted data on student learning to guide planning. Collaborates and reflects with colleagues to improve teaching practice and student success.	Utilizes a wide range of assessments strategically, systematically, and flexibly throughout instruction to identify student learning needs and guide ongoing adjustments in instruction that maximize student learning.
REFLECTING ON TEACHING EFFECTIVENESS	Reflects on content and teaching to make adjustments from one quarter to another.	Seeks collaboration with colleagues and resource personnel to improve teaching practice and student success.	Analyzes and integrates information from a wide range of sources to expand skills of collaboration and reflection as a habit of practice and to impact teacher effectiveness and student learning.

Adapted from the *Continuum of Teaching Practice* developed by CTC, CDE, and New Teacher Center

Teaching Effectiveness Series

PART 3: Gathering Evidence and Communicating Effectiveness

As per the UC Davis **Academic Personnel Manual 210-1-d**, significant types of evidence of teaching effectiveness may include:

- **Self-evaluation** of own teaching effectiveness.
- Opinions of **other faculty members**, particularly if based on class visitations.
- **Development of** new and **effective techniques** of **instruction**, including techniques that meet the needs of students from groups underrepresented.

Reflection and Self-evaluation

Recent scholarship suggests that "...reflection [is] a process in which a person tries to make sense of something while acting on it at the same time" (Bishop-Clarke & Dietz-Uhler, 2012). As instructors, we reflect when we think about what we are doing, are willing to learn, and are open to change. Brookfield (2017) suggests there are a number of reasons reflection on teaching can benefit educators, such as: developing a rationale for practice, taking informed actions, keeping instructors engaged in the teaching process, and establishing trust with students.

We challenge our assumptions through the process of reflection. According to Brookfield, "Critically reflective teaching happens when we build into our practice the habit of constantly trying to identify, and check, the assumptions that inform our actions as teachers (p. 5)." Additionally, considering our own experiences as learners (i.e., what makes us engage when in learning contexts, what motivates us to participate, what makes for effective group interaction) might also inform ways to change practice in order to increase student engagement in our own classes.

Taking time to inventory our own values, beliefs, and philosophies of teaching (Teaching Perspectives Inventory or Teaching Goals Inventory) can also impact our practice. There are both formal and informal processes on the continuum of reflective practice. You could simply start by thinking of responses to the following questions:

- What worked well in my instruction? Who will I share this news with?
- What needs work? Who can help me think through this?
- What will I do differently? How will I know it is working?

For a more structured approach, scholars suggest a three-phased reflective process: Pre-planning, Planning, and Post-Planning (detailed below).

Phase	Description	Points of Reflection
Pre-planning	Thinking about previous experiences that inform the current teaching goal(s) (successes, lessons learned).	What assumptions or dispositions do you have about your class? What do you want learning to look like in your classroom?
Planning	Transforming thinking into action by designing (in some cases pilot testing) and implementing a teaching plan.	What strategies will help you accomplish this vision? What data will you gather to determine the effectiveness of your planning?
Post-planning	Reviewing the plans and the data you have to understand the effectiveness of your planning and to inform future plans.	What ideas, patterns, themes emerged from your data? What would you like to do differently next time?

Peer Collaboration and Observation
Opening ourselves to our colleagues' interpretations may also shed new light on our practice. Engaging in open discussions with colleagues who share many of the same professional experiences can add nuance to our way of thinking, while also providing us with credible alternate perspectives.

Peers can strive for "coaching" conversations with colleagues by engaging in a trusting relationship with clearly defined roles and expectations for peer observations. Prior to observations, instructors can discuss the desired focus so that their peers might know what objective information to collect for follow up discussions. During these post-observation conversations, colleagues might employ several "coaching" and linguistic strategies, such as: (1) paraphrasing, (2) clarifying, and (3) asking mediational questions (Costa & Garmston, 2016).

1. *Paraphrasing* involves either summarizing or restating in your own words.
Some examples of paraphrasing might begin in the following way:
- In other words…
- As I observed the class, I heard…

2. *Clarifying* involves asking a question in order to gather more information or to get clarity about what was said or observed. Since "why" questions may elicit a defensive response, some effective clarifying prompts might begin in the following way:
- Tell me what you mean when you…
- Tell me how that idea is like (different from)…
- I'm curious to know more about…
- I'm intrigued by…/I'm interested in…/I wonder…

3. *Mediational questions* can help the colleague *analyze* what worked or didn't, *compare and contrast* what was planned with what ensued, or *evaluate* the impact.
Some examples of mediational question might begin in the following way:
- What's another way you might…?
- What criteria do you use to…?
- What might you see happening in your class if…?

Interdisciplinary Collaborations and Learning Communities
Good ideas can also benefit from thinking partners and institutional resources beyond your own department. Through interdisciplinary collaborations with the Center for Educational Effectiveness (CEE), you can engage in conversation about any instructional needs or thoughts you or your department may have, whether you know what you want to do or are eager to explore new ideas. Examples may include discussions about improving student engagement, thinking about how technology can help your students learn, expanding the role of TAs, or redesigning a part of your course.

Joining a reading group or Faculty Learning Community or requeting one of a variety of consultation types can provide you with feedback on your teaching, strategies to achieve your goals, and instructional resources. The range of consulations (for Faculty Consultation or Graduate Student/Post-doctoral Consultation) include:
- Meeting to discuss learning and teaching
- Mid-Quarter Inquiry (get anonymous and formative feedback from students, guided by a specialist)
- Equity-Engagement-Inclusion Mid-Quarter Inquiry
- Classroom Observation (review your teaching and discuss strategies)
- Video Recording (watch and analyze your teaching and get ideas for improvement)
- Statement of Teaching Philosophy (generate ideas or get feedback on a draft)

Finally, discipline-specific organizations (e.g., Amercan Society for Engineering Education) may provide further opportunity to interact with existing research and literature on learning and teaching to illuminate our experiences or catalyze fresh new ideas. Taken together, and when examining our practice

consistently and with a regularity, we engage in critical reflection which can improve our teaching effectiveness.

Additional Readings & Resources

- UC Academic Personnel Manual 210: Review and Appraisal Committees for Appointment and Promotion, see Section 210–1–d
- For a peer-reviewed reading on the Teaching Practices Inventory
- To take the Teaching Perspectives Inventory online
- To take the Teaching Goals Inventory online
- For more research on Cognitive Coaching

Citation

Center for Educational Effectiveness [CEE]. (2019). Effective Teaching Series. Just-in-Time Teaching Resources. Retrieved from http://cee.ucdavis.edu/JITT

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