Teaching Effectiveness Framework

The Teaching Effectiveness Framework (TEF) is a tool within the Developing and Evaluating Teaching Toolkit that provides faculty with a set of pedagogical competencies to help focus their developing teaching practice. The TEF is comprised of seven essential, interrelated domains of effective teaching practices—for face-to-face and online instruction—each grounded in the scholarship of teaching and learning. The framework toolkit includes leveled criteria within each domain, a goal-setting process, a collection of teaching practices to improve student learning, and materials for instructors and administrators to measure growth in teaching effectiveness. All professional development from TILT aligns with the domains of the framework, so that instructors can easily find experiences and resources that can help meet their teaching goals.

Principles of the Teaching Effectiveness Framework

Grounded in the Scholarship of Teaching and Learning
• The TEF provides theory and evidence-based practices that support effective teaching, and thus, student success. It includes strategies relevant to face-to-face and online instruction.
• The TEF was developed over a 36-month period with input from numerous CSU stakeholders (VP of Diversity, Committee on Teaching and Learning, Committee on Non-Tenure Track Faculty, Provost for Faculty Affairs, Deans, Chairs, Faculty, TILT Equity Advisory Group) and an in-depth literature review of effective teaching. The TEF is a living document that will be updated periodically, as research on teaching and learning develops.

Developmental and Self-reflective
• The TEF is the foundational component of the comprehensive Developing and Evaluating Teaching Toolkit. The toolkit includes a recommended process for annual review, options for goal setting, and tools for measuring teaching effectiveness. The recommended process for developing and evaluating teaching incorporates the TEF as a starting point for annual goal setting.
• The TEF is designed to be developmental and self-reflective; it is not intended to be used as a stand-alone evaluative tool but rather as a resource for goal setting and reflection within an iterative process for annual review.
• Meaningful measures of teaching must separate the impact of the instructor from the many other factors that affect the attainment of educational outcomes. Teaching is a developmental process that takes time, experience, reflection, and support; the TEF is intended to be used as a supportive and self-reflective tool to improve teaching effectiveness and student success.

Asset-based
• The TEF acknowledges that just as students bring assets to their learning, instructors have a set of assets and strengths that they bring to their teaching.
• The TEF is designed to honor variety in effective teaching. Students benefit from the cultural wealth instructors bring to their teaching; the TEF encourages instructors to find their own path to teaching effectiveness, beginning with their strengths.
• The TEF is not intended to be used as an evaluative tool but as a starting point for self-reflection, setting goals and building on strengths.

Collaborative
• The TEF provides a common language and definition of teaching effectiveness that facilitates discussion of best practices in teaching among CSU faculty and between faculty and students.
• Effective teaching occurs when students attain course outcomes and goals that departments and/or instructors set. The TEF provides the components proven to consistently promote student success. The complexity of developing teaching effectiveness is reflected in the depth of the seven criteria in this framework. The TEF provides the foundation for faculty both within and across disciplines to collaborate with and support each other as they support students in their learning.

Grounded in DEISJ (Diversity, Equity, Inclusion, & Social Justice)
• The TEF threads socially just and inclusive pedagogy throughout each of the domains. While Inclusive Pedagogy is identified as its own domain, fundamental inclusive practices are identified in and woven throughout each of the other domains.
• The TEF honors the challenging and dynamic nature of teaching and elevates the role of teaching faculty at an R-1 institution.
• The TEF fosters an equitable approach to feedback on teaching and supports teaching success for all faculty demographics.
• The icon indicates inclusive teaching practices essential to being “Proficient” or “Advanced” in the other domains of the TEF.
Inclusive Pedagogy

Inclusive pedagogy is a student-centered teaching approach that considers all students’ backgrounds, experiences, and learning variabilities in the planning and implementation of student engagement activities, equitable access to content, mutual respect, and a more robust learning experience for all learners.

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Advanced</th>
<th>Proficient</th>
<th>Developing</th>
<th>Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusive Excellence Training, Reflection, and Practice</td>
<td>Has participated in much training on inclusive excellence in teaching and regularly engages in further reading and reflection; has a developing an awareness of student identities in the classroom and uses this knowledge to support student success. Successful in mitigating their own and students’ assumptions, biases, and microaggressions in the classroom</td>
<td>Has participated in some training on inclusive excellence in teaching and has explored some further reading and reflection, developing awareness of student identities in the classroom and is beginning to use it to make instructional decisions that support students. Has awareness of their own and students’ assumptions, biases, and microaggressions and is beginning to mitigate them in the classroom</td>
<td>Has participated in some training or reading on inclusive excellence in teaching, beginning to develop an awareness of the student identities in the classroom and is beginning to use it to support students. Is developing awareness of their own and students’ assumptions, biases, and microaggressions</td>
<td>Has not yet participated in training or reading on inclusive excellence in teaching; is not yet aware of all students’ identities in their classroom or what impact it has on student success. Has not yet considered their own assumptions and biases in relation to teaching</td>
</tr>
<tr>
<td>Inclusive Teaching Practices</td>
<td>Intentionally and actively incorporates inclusive pedagogical practices within all aspects of the curriculum and the classroom to increase awareness, content knowledge, cognitive sophistication, and sense of community for every individual.</td>
<td>Regularly incorporates inclusive pedagogical practices in planning and delivery of content.</td>
<td>Incorporates some inclusive pedagogical practices in planning and delivery of content.</td>
<td>Instructor has not yet developed inclusive content or pedagogy.</td>
</tr>
</tbody>
</table>

Curriculum and Curricular Alignment

- Adopt practices grounded in inclusive curriculum (see Curriculum/curricular Alignment domain in this document)
- Use Backwards Design to align all course content, assignments, and assessments
- Add an inclusivity statement to your syllabus
- Make sure your syllabus, textbooks, resources and coursework are accessible to all learners and CSU Accessibility by Design website

Classroom Climate

- Create a Welcoming and Inclusive Environment (see Classroom Climate domain in this document)
- Help students learn how to communicate equitably and productively with each other
- Provide opportunities for students to work with others - and for students to see the value of diverse perspectives

Pedagogical Content Knowledge

- Keep current on issues of racism/sexist, current racial tensions, and contemporary cultural issues in the United States, especially in relation to your discipline
- Proactively address common student misconceptions
- Assess prior knowledge of learners; use it to plan/revise class sessions

Student Motivation

- Get to know students individually and personally: backgrounds, interests, reasons for taking the course; share professional research interests and experiences
- Make content relevant to all students’ lives; clearly link concepts/lessons to industry, a broader purpose, future classes/activities, or a transferrable skill
- Use the appropriate language when referring to social groups.
- Use varied names and socio-cultural contexts in stories, test questions and assignments.

Feedback and Assessment

- Create rubrics for assignments, papers, group presentations; share rubrics with students along with assignment directions
- Provide structure and guidelines for student group work and group assignments; guide and reteach skills for productive, inclusive group work
- Provide transparent assignment directions (template)
- Use Classroom Assessment Techniques to check for understanding and to promote mental retrieval and deep learning; this can be done in residential, hybrid, and online courses.

Instructional Strategies

- Use a variety of teaching methods and modalities (verbal, interactive, Socratic, etc.) that align with learning objectives.
- Discussion Techniques - Small group, discussion protocols, think pair share, CATS, etc...
- Use accessible slide presentations, documents, videos and other course materials.
The curriculum and corresponding instruction are most effective when they intentionally provide links among learning objectives, assignments, activities, and assessments, encourage students to think critically about the application of content to both the broader discipline and the world, and are representative of the diversity of scholars in the field.

### Evidence

<table>
<thead>
<tr>
<th>Learning Objectives</th>
<th>Advanced</th>
<th>Proficient</th>
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<th>Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Objectives are specific, measurable, and integrated into instruction</td>
<td>All learning objectives are measurable and require evidence of critical thinking and abilities appropriate to the course level.</td>
<td>Most learning objectives are measurable and require evidence of critical thinking and abilities appropriate to the course level.</td>
<td>Some learning objectives are measurable and require evidence of critical thinking and abilities appropriate to the course level; others need specificity.</td>
<td>Learning objectives require more specificity to be measurable and/or require evidence of critical thinking and abilities appropriate to the course level.</td>
</tr>
</tbody>
</table>

### Course Alignment

| Alignment between learning objectives, course materials, assessments, and other course content | Connections between objectives, course materials, and assessments are an intentional and consistent aspect of the course. Instructor provides clear guidelines and frequent opportunities for students to make connections within the course, the broader discipline, and the world. | Connections between objectives, course materials, and assessments are intentional. Instructor provides clear guidelines and some opportunities for students to make connections within course content and across courses. | Connections between objectives, course materials, and assessments are in the syllabus but not an intentional or consistent aspect of the course. Instructor occasionally provides opportunities for students to make a connection within course content. | Connections between objectives, course materials, and assessments are inconsistent and unclear. Instructor attempts to provide an opportunity for students to make connections within course content but connections need development. |

### Inclusive Curriculum

| Representation and use of materials from scholars from minoritized groups | Intentional variety is incorporated into most assignments and assessments. Wide and purposeful use of materials outside the text -- with good representation from scholars from minoritized groups. | Intentional variety in several of assignments and assessments. Several curricular materials outside the text -- with a few from scholars in the field from minoritized groups. | Minimal variety of assignments and assessment type. A few curricular materials outside the text -- with a few from scholars in the field from minoritized groups. | Little to no variety in assignments and assessment type. May be aware of the need for a variety of materials outside the text and need of materials from scholars from minoritized groups but has not yet integrated them. |

### Syllabus

| Welcoming and supportive word choice | Welcoming and supportive word choice, welcoming tone, contains an inclusivity statement, a visual representation of the course, and campus resources for students. It is a succinct and meaningful document that is used throughout the semester. | Welcoming tone contains most of the components of the “Advanced” column. It is sometimes referred to during the semester. | Syllabus has a neutral tone and contains some of the components of the “Advanced” column. It may contain too little, too much information or the information may need to be more organized to be useful to students. | Word choice in the syllabus sets a negative or unsupportive tone. It does not contain much of the crucial information that supports student success as detailed in the “Advanced” column or the information is not organized in a navigable manner. |

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**Inclusive Curriculum**

- Choose/Create content that deliberately reflects the diversity of contributors to the field
- Adopt practices grounded in inclusive curriculum
- Use a variety of course materials: text, video, simulation, games, etc. to appeal to a variety of learning preferences
- Use visuals, examples, analogies, and humor that do not reinforce stereotypes but do include traditionally marginalized people or perspectives to ensure inclusivity
- Know the implications of religious perspectives regarding course content.
- Ensure all of your course materials are accessible to all learners

**Learning Objectives/Outcomes**

- Use Bloom’s or Fink’s Taxonomy to write clear and measurable learning outcomes
- Write outcomes that align with the cognitive demands of the course
- Write short term outcomes for units, modules, or daily activities

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- Use Backwards Design to align all course content, assignments, and assessments
- Align assessments, assignments, and class activities with student learning outcomes
- Align rigor of class activities, discussions, i-clicker questions, etc. with rigor of exams
- Design activities where students make connections between content and student learning outcomes

**Syllabus**

- Design a learner-centered syllabus (use this rubric to assess your syllabus)
- Add an inclusivity statement to your syllabus
- Make sure your syllabus, textbooks, resources and coursework are accessible to all learners and CSU Accessibility by Design website
- Provide a visual map of the course, including alignment of objectives to assessments
- Include campus resources for students: TILT tutoring, Student Resources and Campus Life
Instructor-Student Rapport

Create a Welcoming and Inclusive Environment
- **Use students’ names and pronounce them correctly** – use name tents or seating charts in large classes
- **Instructor/students create class norms** and establish a system to adhere to them
- **Connect the content to the lived experiences of a variety of students**
- Incorporate practices that create a sense of belonging for students: international students, students of color, gender identities and disabilities
- Incorporate Principles of Community into your class
- Do not ask individuals to speak for an entire group of people
- Ensure inclusivity and cultural awareness in your non-verbal communication, language, and symbolic representations
- Be intentional about your first day of class

Student-Student Rapport
- **Create a sense of belonging**
- Address bias and microaggressions in your classroom

Instructor-Student Rapport
- **Make time to answer student questions/create a system** where all students ask questions
- **Talk with students instead of at them**
- **Ask students for feedback** on your teaching several times a semester; do something with their feedback
- Be authentic and vulnerable
Pedagogical Content Knowledge

Pedagogical content knowledge combines content knowledge and pedagogical expertise within a content area in order to employ appropriate instructional strategies that successfully address the most common misconceptions of students; the most difficult concepts for students; the most effective sequencing of concepts; important relevant connections; and the most crucial knowledge and skills students should master by the end of a course.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Knowledge of Content and Instructional Strategies</td>
<td>Instructor consistently demonstrates alignment of content and pedagogical expertise in the content area; instruction and assessments are effectively sequenced, appropriate for the level of students in the course, and consider abilities of current students.</td>
<td>Instructor demonstrates frequent alignment of content expertise with best practices in content area teaching; most instruction and assessments are effectively sequenced, appropriate for the level of learners in the course, and consider abilities of current students.</td>
<td>Instructor demonstrates some alignment of content expertise with best practices in content area teaching; some instruction and assessments are effectively sequenced, appropriate to the level of learners in the course, and consider abilities of current students. Much instruction is rote.</td>
<td>Instructor demonstrates little alignment of content expertise with best practices in content area teaching; instructor is unaware or unsure of whether or not concepts are effectively sequenced or appropriate for the level of learners in the course or consider abilities of current students.</td>
</tr>
<tr>
<td>Knowledge of Students</td>
<td>The instructor knows and relays misconceptions, alternative conceptions, or preconceptions of content to students and regularly makes essential connections between course content, other courses in the curriculum and to contemporary issues in the field.</td>
<td>The instructor knows and relays misconceptions, alternative conceptions, or preconceptions of content to students and makes relevant connections between course content, other courses in the curriculum and to contemporary issues in the field.</td>
<td>The instructor knows and relays some misconceptions, alternative conceptions, or preconceptions of content to students and makes occasional connections between course content, between courses in the curriculum and to contemporary issues in the field.</td>
<td>The instructor relays an occasional misconception, alternative conception, or preconception of content to students and/or does little to make clear connections between course content, other courses, and contemporary issues in the field.</td>
</tr>
<tr>
<td>(If applicable) LA and GTA implementation</td>
<td>The instructor acts as pedagogical guide to other faculty, GTA’s, and LA’s in content area teaching and learning.</td>
<td>The instructor acts as pedagogical guide to LA’s and GTA’s in content area teaching and learning.</td>
<td>The instructor encourages LA’s and GTA’s to assist students when asked.</td>
<td>The main role of LA’s and GTA’s is to grade student work. Little to no interaction with students is encouraged.</td>
</tr>
</tbody>
</table>

**Knowledge of Content and Instructional Strategies**
- Determine breadth and depth of content necessary for course level: align with pre-, co-, and subsequent courses
- Present information in a sequence that makes sense to a (new, intermediate, advanced) learner
- Use a variety of instructional strategies to engage a variety of learners (Determine which instructional strategies work best for your teaching style and your students).
- Scaffold lessons and activities to support students in reaching the level of critical thinking needed to master course content
- Teach students about Bloom’s Taxonomy and how it relates to higher level thinking required for course concepts.
- Provide explicit learning strategies for your content/field so students know how to work more effectively.
- Keep current on issues of racism/sexism, current racial tensions, and contemporary cultural issues in the United States, especially in relation to your discipline

**Knowledge of Students**
- Proactively address common student misconceptions
- Assess prior knowledge of learners; use it to plan/revise class sessions
- Align instruction with assessment, frequently check for understanding
- Connect content to other course content, other courses, and contemporary issues in the field
- Plan activities, discussions, and formative assessments for concepts that are typically difficult for students

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## Student Motivation

Motivation is triggered by the perceived value or benefit of the academic content or task. Student involvement and commitment to learning increases when an instructor uses a variety of researched motivation techniques.

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<tr>
<td><strong>Research-based Motivation Techniques</strong></td>
<td>The instructor uses a variety of appropriate research-based or innovative techniques to keep students motivated during every class.</td>
<td>The instructor uses several research-based or innovative motivation techniques during most classes.</td>
<td>The instructor occasionally uses motivation techniques during some classes.</td>
<td>The instructor attempts to use motivation techniques, but the successful employment of these needs further development or the instructor does little to attempt to motivate students.</td>
</tr>
<tr>
<td><strong>Instructional Language</strong></td>
<td>The instructor consistently uses language that includes all students, encourages students, honors effort, and demonstrates belief in student abilities.</td>
<td>The instructor often uses language that includes all students, encourages students, honors effort, and demonstrates belief in student abilities.</td>
<td>The instructor occasionally uses language that encourages students or demonstrates belief in student abilities. The language might not feel inclusive to all students.</td>
<td>Instructor occasionally uses standard phrases to encourage students (e.g., “good job,” “you can do it,” “if you read (study, pay attention…), you’ll do better on the test”).</td>
</tr>
<tr>
<td><strong>Approaches to Teaching</strong></td>
<td>Instruction includes strategic variety of activities, discussions, and connections to engage students with content; instructor frequently models how students can best engage with content and each other, and engages students in analyzing/discussing student-generated exemplars of assignments.</td>
<td>Instruction includes some variety of activities, discussions, and connections to engage students with content; instructor sometimes models how students can best engage with content, each other, and provides some student-generated exemplars for high stakes assignments.</td>
<td>Instruction includes a little variety of activities, discussions, and connections to engage students with content; instructor occasionally models how students can best engage with content and each other. May refer students to an example of high stakes assignments.</td>
<td>Instruction includes minimal to no variety of activities, discussions, or connections to engage students with content; instructor does not yet model how students can engage with content and each other. Exemplars for high stakes assignments are not provided.</td>
</tr>
<tr>
<td><strong>Student engagement</strong></td>
<td>Most students remain engaged in classroom activity, independently and collaboratively, and demonstrate active pursuit of content knowledge.</td>
<td>Many students remain engaged in classroom activity, independently and/or collaboratively, and demonstrate interest in content.</td>
<td>Some students are actively engaged in classroom activities either independently or collaboratively.</td>
<td>Few students remain engaged in classroom activity.</td>
</tr>
</tbody>
</table>

### Research-based Motivation Techniques

- **Believe in all students** – that they can succeed; communicate this with them
- **Get to know students individually and personally**: backgrounds, interests, reasons for taking the course
- Share professional research interests and experiences.
- **Make content relevant** to all students’ lives; clearly link concepts/lessons to industry, a broader purpose, future classes/activities, or a transferrable skill.
- Engage students’ emotions to see their potential to make the world a better place.
- Promote growth mindset and students’ resilience by shifting attention to problem solving, appropriately scaled challenges and working through failure.
- Support students when working in groups.
- Provide opportunities for students to teach and learn from their peers.

### Instructional Language

- Use the **appropriate language** when referring to social groups.

### Approaches to Teaching

- Provide opportunities to learn in a variety of learning modalities: group learning, peer learning, individual learning, learning with technology, etc.
- Teach from everywhere in the room, not just from behind the podium.
- Challenge students with deep learning (case studies, community-based learning, collaborative projects, etc.).
- Acknowledge student effort; allow room in your grading for risk-taking and error.
- **Gauge the rigor of your instruction**: Is it at a level that will provide the correct learning edge for students?

### Student Engagement

- **Encourage behavioral, emotional, and cognitive engagement in your course.**
## Feedback and Assessment

Frequent formative assessments and low-stakes assignments inform instructors and students of how much, and the extent to which, content or skills are mastered. Teaching strategies can then be adjusted to meet students’ needs. Integrating a variety of assessment strategies provides all students with multiple opportunities to succeed.

### Summative Assessment
- **Evidence**
  - Assignment rubrics
  - Class activities related to assessment

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Summative Assessment</td>
<td>All assessments of assignments, projects and tests are effectively sequenced, appropriate for the level of learners, and aligned with daily learning outcomes and overall course objectives; assessment criteria are clear and communicated to students in a timely manner to be used as a learning opportunity.</td>
<td>Most assessments of assignments, projects and tests are effectively sequenced, appropriate for the level of learners, and aligned with daily learning outcomes and overall course objectives; assessment criteria are clear and communicated to students in a timely manner.</td>
<td>Some assessments of assignments, projects and tests are purposely sequenced, appropriate for the level of learners, and aligned with overall course objectives; assessment criteria are mostly clear. Criteria are typically communicated to students when they receive the grade.</td>
<td>Tests, quizzes, projects, and assignments are given throughout the semester and are aligned with course objectives; assessment criteria are unclear or unknown, or not effectively communicated with students.</td>
</tr>
<tr>
<td>Formative Assessment and Feedback</td>
<td>The instructor regularly uses formative assessment strategies and low-stakes assignments/quizzes to gauge student understanding, modify future lessons, make in-the-moment instructional adjustments, and give timely feedback.</td>
<td>The instructor uses several formative assessment strategies and low-stakes assignments/quizzes to gauge student understanding, modify future lessons, make in-the-moment instructional adjustments, and give timely feedback.</td>
<td>The instructor uses one or two formative assessment strategies and low-stakes grades to give students feedback.</td>
<td>The instructor does not use formative assessment strategies or low-stakes grades to give students feedback.</td>
</tr>
<tr>
<td>First Four Weeks</td>
<td>The instructor provides an ample number of low-stakes assessments and feedback to students during the first four weeks of class.</td>
<td>The instructor provides some low-stakes assessments and feedback to students during the first four weeks of class.</td>
<td>The instructor provides little feedback to students during the first four weeks of class.</td>
<td>The instructor does not provide feedback to students during the first four weeks of class.</td>
</tr>
</tbody>
</table>

### Formative Assessment and Feedback
- **Align assessments** with objectives; share this alignment with students.
- Create [rubrics](link) for assignments, papers, group presentations; share rubrics with students along with assignment directions.
- Use rubrics as a [teaching and learning tool](link).
- Vary assessments: quizzes, exams, assignments, papers, projects, simulations, presentations, etc.
- Provide transparent assignment directions. (template)
- Create real-life, authentic assessment opportunities.
- Scaffold large assignments: assign small chunks of assignments, allow for rough drafts, revisions, and peer feedback. Give students opportunities to engage in self/peer assessment drafts of their assignment using the rubric.
- Consider group quizzes or tests in addition to individual testing.

### First Four Weeks
- Use low stakes assessments during the [First Four Weeks](link) of class.
- Administer a mini-exam at the same difficulty level as larger exams.
- Structure time for students to engage in self/peer assessment.
- Provide structure and guidelines for student group work and group assignments; guide and reteach skills for productive, inclusive group work.
**Instructional Strategies**

The classroom, whether it be on campus or virtual, draws students from different backgrounds with various experiences and abilities. Using a variety of instructional strategies increases student engagement, critical thinking, connections to learning outcomes, and student success for all learners. Being an effective teacher requires the implementation of creative and innovative teaching strategies that work best for your course, your students, and your teaching style.

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</thead>
<tbody>
<tr>
<td><strong>Active Learning</strong></td>
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<tr>
<td>• Variety of instructional strategies</td>
<td>The instructor uses a variety of instructional strategies appropriate to course content during all class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.</td>
<td>The instructor uses a variety of instructional strategies during many class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.</td>
<td>The instructor uses a few instructional strategies during some class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.</td>
<td>The instructor uses one or two instructional strategies during some class sessions to increase student engagement, critical thinking, understanding, and connections to learning objectives.</td>
</tr>
<tr>
<td>• Frequency of opportunities for participation</td>
<td>Use of visual presentation and technology that aligns with research-based best practices; most course materials and instructional communication practices have been examined through the lens of assistive technology resource guidelines.</td>
<td>Most visual presentation and technology use align with research-based best practices; most course materials and instructional communication practices have been examined through the lens of assistive technology resource guidelines.</td>
<td>Some visual presentation and technology use align with research-based best practices; some course materials and instructional communication practices have been examined through the lens of assistive technology resource guidelines.</td>
<td>Visual presentation and technology use do not yet align with research-based best practices or assistive technology resource guidelines.</td>
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<tr>
<td><strong>Learning Technology</strong></td>
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<tr>
<td>• Presentation slides</td>
<td>Use a variety of teaching methods and modalities (verbal, interactive, Socratic, etc.) that align with learning objectives.</td>
<td>Use accessible slide presentations, documents, videos, and other course materials.</td>
<td>Keep students engaged by using learning apps: Padlet, Kahoot, Jamboard, Flippity, Quizlet, Edpuzzle, Flipgrid, iClickers.</td>
<td></td>
</tr>
<tr>
<td>• Canvas content</td>
<td>Individual processing activities.</td>
<td>Guide students in three phases of learning: Predicting, Interleaving, Connecting, Practicing.</td>
<td>Avoid cognitive overload for students, allow time for metacognition.</td>
<td></td>
</tr>
<tr>
<td>• Learning Apps</td>
<td>Partner processing activities.</td>
<td>Service learning</td>
<td>Incorporate elaboration, spacing, and frequent quizzing/testing.</td>
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<tr>
<td><strong>Science of Learning</strong></td>
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<tr>
<td>• Structure of assignments and class activities</td>
<td>Small group activities</td>
<td>Use learning strategies that have a proven effect size on student learning.</td>
<td>Keep students engaged by using learning apps: Padlet, Kahoot, Jamboard, Flippity, Quizlet, Edpuzzle, Flipgrid, iClickers.</td>
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<tr>
<td></td>
<td></td>
<td>Use Concept maps</td>
<td>Science of Learning</td>
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<td></td>
<td>Use Classroom management strategies – setting a timer for activities, writing and posting directions for activities.</td>
<td>Align questions with the level of thinking you want from students.</td>
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<td>Chunk class time into 10 - 15 minute segments with processing time after each segment.</td>
<td>Guide students in three phases of learning: surface, deep, and transfer.</td>
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<tr>
<td></td>
<td></td>
<td>Service learning</td>
<td>Design classes so that students engage in: Predicting, Interleaving, Connecting, Practicing.</td>
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<tr>
<td></td>
<td></td>
<td>In class problem solving - Problem Solving Models.</td>
<td>Avoid cognitive overload for students, allow time for metacognition.</td>
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<td></td>
<td></td>
<td>First five minutes of class</td>
<td>Incorporate elaboration, spacing, and frequent quizzing/testing.</td>
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<tr>
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<td></td>
<td>Writing to learn</td>
<td>Peer to peer instruction</td>
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<td>Cultural learning projects</td>
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