**Supplemental Digital Content, Table 2. Principles of Universal Design for Instruction©9**

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| **Principle** | **Definition** | **Examples** |
| Principle 1:Equitable use | Instruction is designed to be useful to and accessible by people with diverse abilities. Provide the same means of use for all students; identical whenever possible, equivalent when not. | Provision of class notes online. Comprehensive notes can be accessed in the same manner by all students, regardless of hearing ability, English proficiency, learning or attention disorders, or note taking skill level. In an electronic format, students can utilize whatever individual assistive technology is needed to read, hear, or study the class notes. |
| Principle 2:Flexibility in use | Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use. | Use of varied instructional methods (lecture with a visual outline, group activities, use of stories, or web board based discussions) to provide different ways of learning and experiencing knowledge |
| Principle 3:Simple and intuitive | Instruction is designed in a straightforward and predictable manner, regardless of the student’s experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity. | Provision of a grading rubric that clearly lays out expectations for exam performance, papers or projects; a syllabus with comprehensive and accurate information; a handbook guiding students through difficult homework assignments. |
| Principle 4:Perceptible Information | Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student’s sensory abilities. | Selection of text books, reading material, and other instructional supports in digital format or online so students with diverse needs (e.g., vision, learning, attention, English Language Learners) can access materials through traditional hard copy or with the use of various technological supports (e.g., screen reader, text enlarger, online dictionary). |
| Principle 5:Tolerance for error | Instruction anticipates variation to individual student learning pace and prerequisite skills. | Structuring a long-term course project so that students have the option of turning in individual project components separately for constructive feedback and for integration into the final product; provision of online “practice” exercises that supplement classroom instruction. |
| Principle 6:Low physical effort | Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of the course. | Allowing students to use a word processor for writing and editing papers or essay exams. This facilitates editing of the document without the additional physical exertion of rewriting portions of text (helpful for students with fine motor or handwriting difficulties or extreme organization weaknesses while providing options for those who are more adept and comfortable composing on the computer. |
| Principle 7:Size and space for approach and use | Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student’s body size, posture, mobility, and communication needs. | In small class settings, use of a circular seating arrangement to allow students to see and face speakers during discussion-important for students with attention deficit disorder or who are deaf or hard of hearing. |
| Principle 8:A community of learners | The instructional environment promotes interaction and communication among students and between students and faculty. | Fostering communication among students in and out of class by structuring study groups, discussion groups, e-mail lists, or chat rooms; making a personal connection with students and incorporating motivational strategies to encourage student performance through learning students’ names or individually acknowledging excellent performance. |
| Principle 9:Instructional climate | Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students | A statement in the class syllabus affirming the need for class members to respect diversity in order to establish the expectation of tolerance as well as to encourage students to discuss any special learning needs with the instructor; highlight diverse thinkers who have made significant contributions to the field or share innovative approaches developed by students in the class. |

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