ACTIVE LEARNING TECHNIQUES

Code	Low Complexity
A	Question and Answer
B	One-minute Paper / Focused Listing/ One Sentence Summary
C	Think / Pair / Share
D	Brain Dump / Free Write
E	Muddiest Point
F	Misconception / Preconception Check
G	Application Activity
H	Student-Generated Questions
I	Formative Quizzes / Surveys (Background Knowledge Probe)
J	Computer-Based Interaction Systems (Personal Response System)
K	Self / Peer Formative Assessment
Code	**Moderate Complexity**
L	Small Group Presentations / Discussions
M	Role Playing / Simulations / Games
N	Categorizing Grid / Pro-Con Grid
O	Defining Features Matrix / Memory Matrix
P	Debates
Q	Peer Teaching
R	Concept Maps
Code	**High Complexity**
S	Cases
T	Cooperative Cases
U	Jigsaw
V	Cooperative Learning / Problem-Based Learning

Low Complexity
Example: Abdomen "Lecture"

Code	Activity Description
A	**Question and Answer** Students orally respond to a question, comment, etc., either voluntarily or by cold-calling. **Example:** Where is the liver located in the abdominal cavity? In what quadrant(s)? **Follow-up:** Ask another student to add to the response given until it is complete.
B	**One-minute Paper / Focused Listing / One Sentence Summary** Short writing task designed to allow students to focus attention on a single important term, name or concept from a particular lesson/session. **Example:** Please give me a quick one sentence summary of how the liver is divided. **Follow-up:** Ask another student to add to the response given until it is complete OR post complete response to Blackboard so students can self-correct.
C	**Think / Pair / Share** Short, individual written response to a prompt/question. Then share and discuss briefly with a partner. Then share with larger group. **Example:** If you have a perforated gastric ulcer on the lesser curvature of the stomach, where will the "leaking" go? Please take a few minutes to write down that answer individually. After a couple of minutes, ask the students to discuss with the person sitting next to them. Ask for a volunteer pair to share what they came up with. Ask another pair if they agree; why/not. Poll the class for agreement/disagreement. Clarify as needed based on responses.
D	**Brain Dump / Free Write** Short write in which students write down everything they know about an announced topic. **Example:** What do you know about the stomach? **Follow-up:** Ask the class what they wrote about (function, location, physical description, etc.) to develop a list of types of content they should be able to recall (as a way to organize their study materials).
E	**Muddiest Point** At some point during or after an in-class presentation, students write a quick response to the prompt, "What was the muddiest point in_____?" **Example:** What was the muddiest point in this session about the abdomen? Why was it muddy? **Follow-up:** Use this at the beginning of the next session OR post to Blackboard so students can self-correct.
F	**Misconception / Preconception Check** Simple oral or written technique for gathering information on what students perceive they already know. **Example:** Based on your personal experience, even on ads seen on TV, what do you know about peptic ulcers? **Follow-up:** Quickly acknowledge the correct facts; focus the rest of the time on what was misperceived or not mentioned.

Low Complexity-continued
Example: Abdomen "Lecture"

G	**Application Activity** Written activity in which students apply 1-2 principles and concepts to a real life situation. Can also be done orally. **Example:** if a patient comes to you with right upper quadrant pain, what organs do you start thinking about? What other area(s) might the pain be referred from?
H	**Student-Generated Questions** Students create questions for quizzes or exams that are crafted to capture central elements of the course. **Example:** Based on the material read and just reviewed, develop 2 potential exam questions that show you understand and can apply the material. Write them on the index cards provided. I will post them to Blackboard- they might be on your upcoming exam!
I	**Formative Quizzes / Surveys (Background Knowledge Probe)** Ungraded quizzes / surveys to determine comprehension. **Example:** Give a CT (Computed Tomography) image of the abdomen for the students to label. Then show a correctly labeled image for students to self-correct. Ask for a show of hands of each element that was correctly labeled. Focus the rest of the time on the incorrect elements.
J	**Computer-Based Interaction Systems (Personal Response System)** Students participate in the lecture by responding to questions / statements via computers / wireless technology. **Example:** Ask a multiple choice question based on what was just explained and ask the students to answer using the turning point system. **Follow-up:** Show class responses. Ask for a volunteer to explain why they chose "a." Ask a different student to explain why they did not choose "a." Repeat for other options. Take poll again and share. Correct as needed.
K	**Self / Peer Formative Assessment** Activities that require students to assess performance against applicable criteria; extend to offer specific suggestions for improvement. **Example:** Give a CT (Computed Tomography) image of the abdomen for the students to label individually. Have them discuss in dyads and give each other feedback. Suggest they consult the text or the posted key on Blackboard to self-correct.

Moderate Complexity

Code	Activity Description
L	**Small Group Presentations / Discussions** Presentations / discussions of course material lead by faculty or student **Tip:** Set clear objectives and assign (or have students select) topics that promote in-depth learning. Outline your presentation objectives. **Tip:** After each presentation ask students to offer their own views by asking questions and providing feedback. Compare/contrast views and clarify information.
M	**Role Playing / Simulations / Games** Students and/or faculty performing specific roles for demonstration purposes. **Tip:** Give participants background information and ask them to develop a role-playing vignette to achieve a certain objective. *e.g.* A patient is admitted to the ER with severe abdominal pain. Objective: formulate differential diagnosis **Tip:** Avoid "social loafers" by assigning a "role" to each student, including assigning those observing to take notes and provide feedback.
N	**Categorizing Grid / Pro-Con Grid** Students are presented with 2-3 important categories (superordinate concepts) along with scrambled subordinate terms, images, equations or other items that belong in one or another of the superordinate categories. **Tip:** Give students limited time to sort the subordinate terms into the correct categories on the grid and then provide feedback to address errors or missing information. Discuss why the categories are designated as they are (i.e. common features).
O	**Defining Features Matrix / Memory Matrix** Students categorize concepts presented according to presence (+) / absence (-) of defining features. **Tip:** Enhance retention of course content by asking students to analyze facts and categorize information by filling in the content in the matrix. (Ideal for visual learners!). **Tip:** Use the students' completed memory matrix to help identify prior knowledge and correct errors. Modify your instruction to help address gaps in learning.
P	**Debates** Small or large group structured exploration of central concepts, data, beliefs, values **Tip:** Set "ground rules" and standards of professionalism. **Tip:** Use debates as an activity to help develop understanding of difficult psychosocial issues and explore varying points of views on a topic. *e.g.* Do probiotics speed recovery from peptic ulcers?

Moderate Complexity-continued

Q	**Peer Teaching** Students teaching each other basic and/or intermediate levels of course materials or needed skills. **Tip:** Implement peer teaching to help increase interest in subject areas and reduce the risk of students becoming passive learners. Rotate peer teaching so everyone has an active role in the process. **Tip:** Use the more advanced students in the group to serve as role models (peer modeling).
R	**Concept Maps** Drawings or diagrams that show the mental connections that students make between major concepts presented or other concepts they have learned. **Tip:** Begin by asking the students to identify the most general concepts and place them at the top of the map. Work toward identifying/relating each general concept to more specific concepts. **Tip:** Students should link together the general and specific concepts with linking words and arrows that make sense and actively look for cross-linkages that tie concepts from one side of the map to concepts on the other. (Use concept maps as a learning strategy to help identify prior knowledge and gaps in learning).

High Complexity

Code	Activity Description
S	**Cases** Scenarios that require students to integrate their skills to solve problems that relate to course material. **Tip:** Make the material subtle and challenging; do not be obvious about what is right or wrong. **Tip:** Present viable options and continue to Introduce new information to move toward the next clinical decision point.
T	**Cooperative Cases** Scenario-based problem-solving activity using small groups to tackle specific questions/issues from a larger list. **Tip:** Each group addresses a different issue and is instructed to teach one another what they learned. **Tip:** Return to the full group to review cases. Instructor answers any remaining questions or provides additional information.
U	**Jigsaw** Team-based: each member becomes subject matter expert in 1 of 4 areas selected from current course material. Each member teaches their subject matter. **Tip:** Choose a topic/material that can be broken into several parts and ask students to research their assigned part, and then join the "expert" groups. (Example: All of the students assigned Part 1 form the Part 1 expert group). **Tip:** Before presenting to the class, allow each “expert group” enough discussion time to arrive at a consensus on the topic they are presenting.
V	**Cooperative Learning / Problem-Based Learning** Students work together to learn course knowledge and to develop course skills. PBL teaches skills and facts in a relevant context and requires students to solve real-world, open-ended problems that have multiple possible answers. **Tip:** Create a problem that asks students to formulate ideas/concepts based on facts using prior knowledge, logic or current research with the information given in the case. **Tip:** Build critical thinking about the case by asking questions, particularly about possible alternatives (approaches, answers, etc.).