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Rethinking Assessments: Alternative Ideas about How to Assess Students in an Active Learning Environment

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Overview:

1. A short introduction

2. Good practices and experiences

3. Think about your own activities

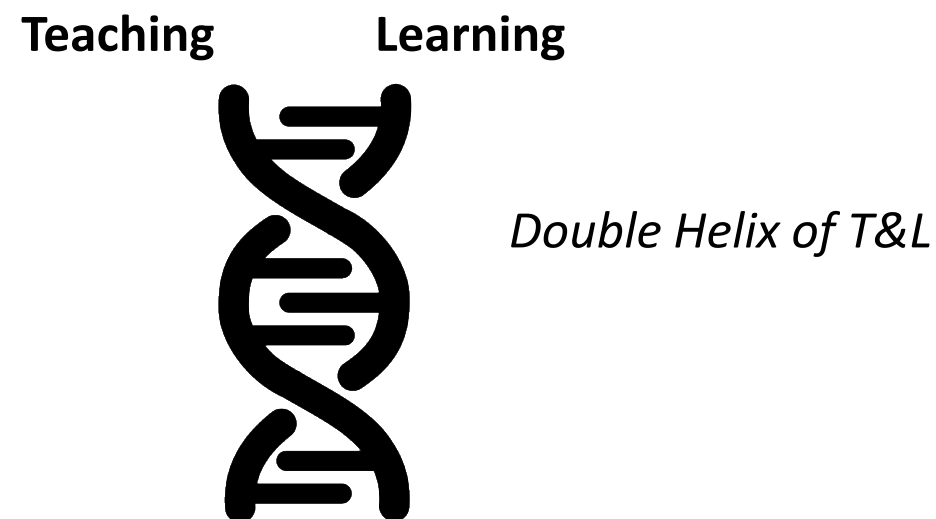4. To consider

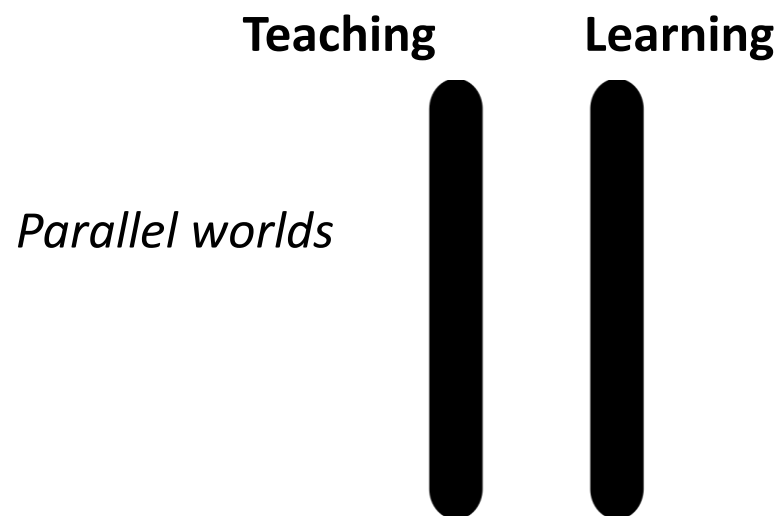5. Developing assessments from activities

Introduction:

Just to remember:

'Active Learning is a pedagogical method that engages students in their learning process to become more active learners. It aims at meaningful learning.'
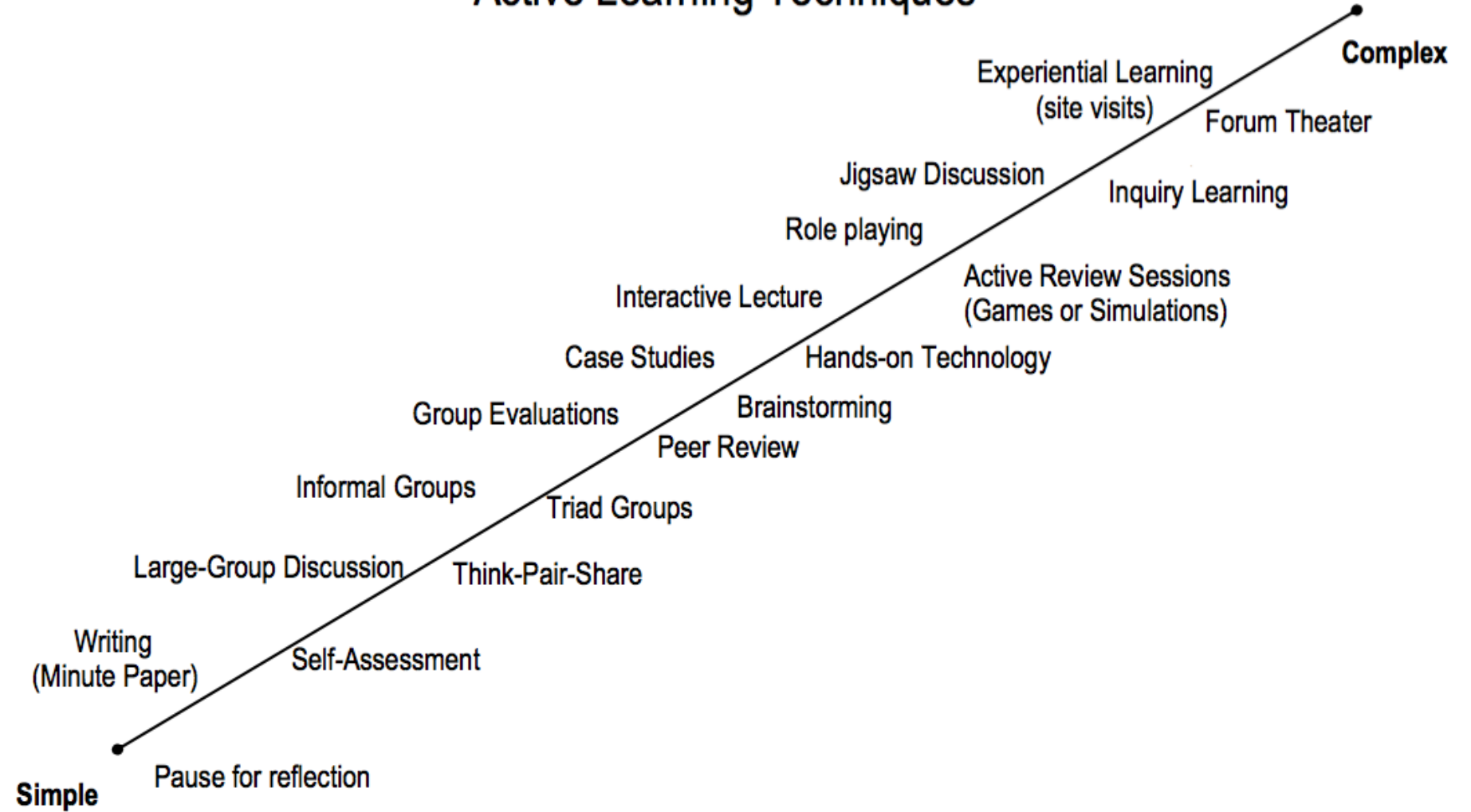
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Visible Learning

Teaching and Learning

Teaching   **Learning**

Parallel worlds

Teaching   **Learning**

Double Helix of T&L

"What is most important is that teaching is **visible** to the student, and that learning is **visible** to the teacher. The more the student becomes the teacher and the more the teacher becomes the learner, then, the more successful are the outcomes." (Hattie, 2009: 25).

Examples

Active Learning Techniques

Complex

Experiential Learning (site visits)

Forum Theater

Jigsaw Discussion

Inquiry Learning

Role playing

Active Review Sessions (Games or Simulations)

Interactive Lecture

Case Studies

Hands-on Technology

Group Evaluations

Brainstorming

Peer Review

Informal Groups

Triad Groups

Large-Group Discussion

Think-Pair-Share

Writing (Minute Paper)

Self-Assessment

Simple

Pause for reflection

This spectrum arranges active learning techniques by complexity and classroom time commitment.

Prepared by Chris O'Neal and Tershia Pinder-Grover, Center for Research on Learning and Teaching, University of Michigan

What is Active Learning?

3 key elements (for lecturers)

Prepare

Provide preparatory activities to activate *prior knowledge*

Act

Offer activities to engage students in *doing something* with the material

Assess

Facilitate students to *continously assess* their learnings

Create assessments which match to your learning activities

Assessment for active learning

What I teach: Micro 2, a *tool-based* math-heavy course

- Also: how to **think** as an economist (optimization, equilibrium,…)

My guiding principles:

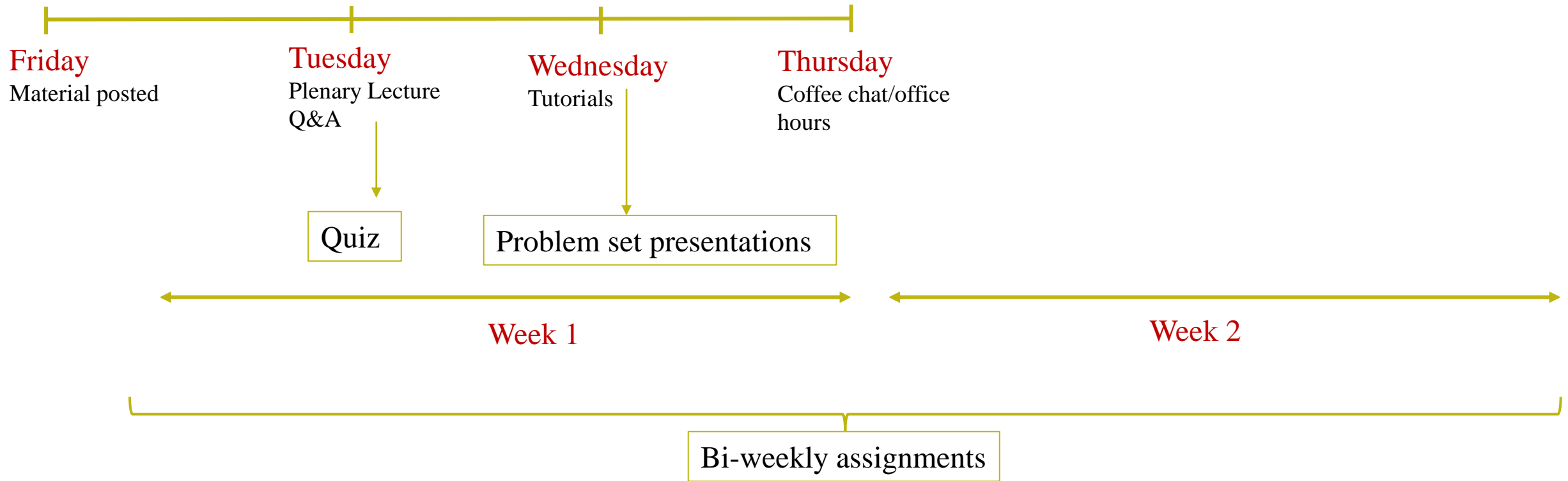Active learning is about ownership of the material (capacity to apply the tools to new scenarios)

- Assessment needs to have **enough variation** so that mechanical/blind application of methods is
- Creative application of methods need **time**

Active learning happens in multiple layers:

- memorization → retrieval → application → memorization → retrieval…
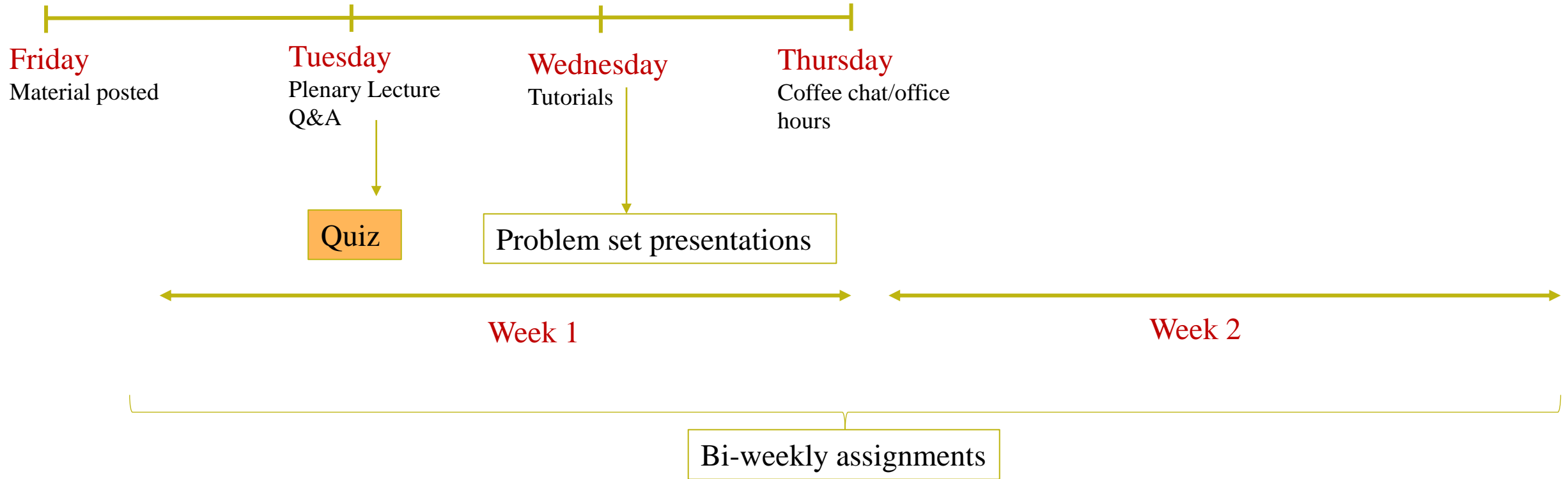- Assessment should be recurring, **continuous** (within limits)

Assessment tools

Friday
Material posted

Tuesday
Plenary Lecture
Q&A

Quiz

Wednesday
Tutorials

Problem set presentations

Thursday
Coffee chat/office hours

Week 1

Week 2

Bi-weekly assignments

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Canvas Quiz [max 2/100 bonus points]

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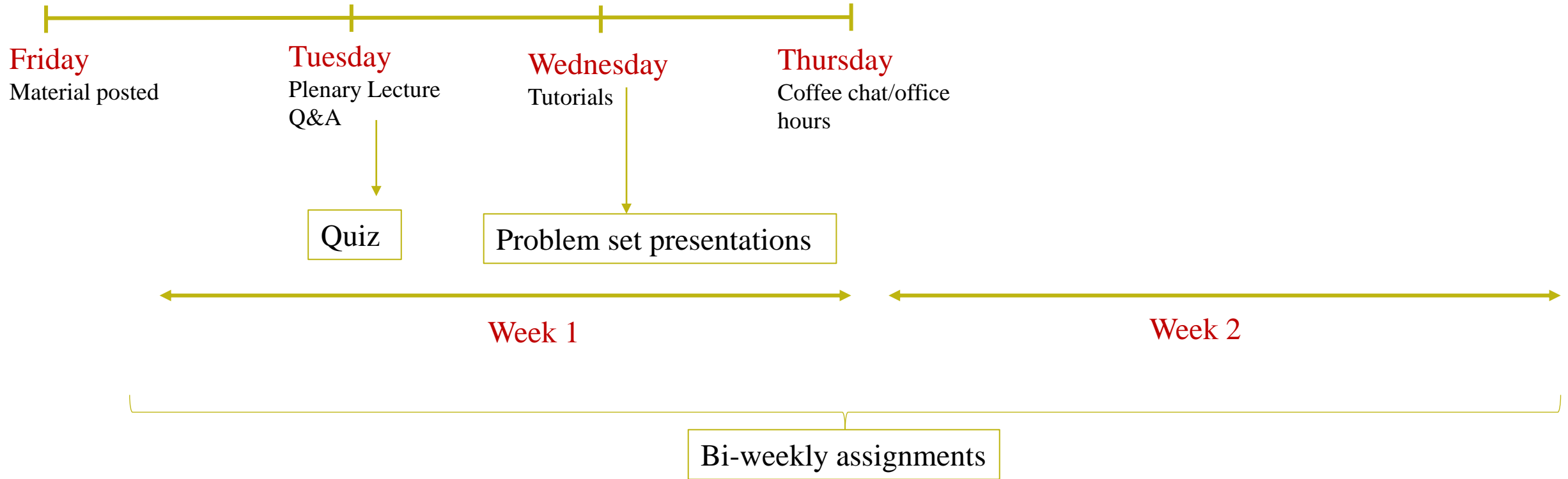Plenary Lecture
Q&A

Wednesday
Tutorials

Thursday
Coffee chat/office
hours

- Goal: students arrive at the plenary class prepared

- Structure:

  - Quiz opens for 10 minutes just before the break

  - Calibrated so that it can be passed by <u>all and only</u> those who have watched the clips

  - Easy level invites students to learn the first "layer"

  - Students are allowed to talk to each other: peer learning

  - The quiz is discussed right after the break with students' inputs [another 10 minutes of active learning]
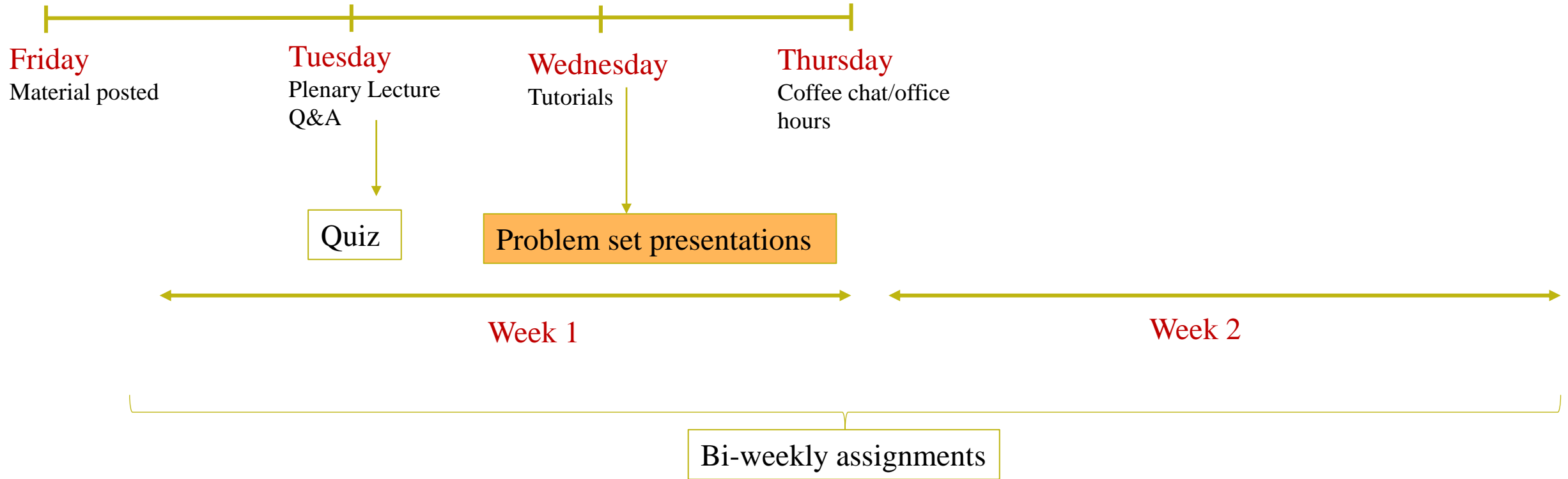
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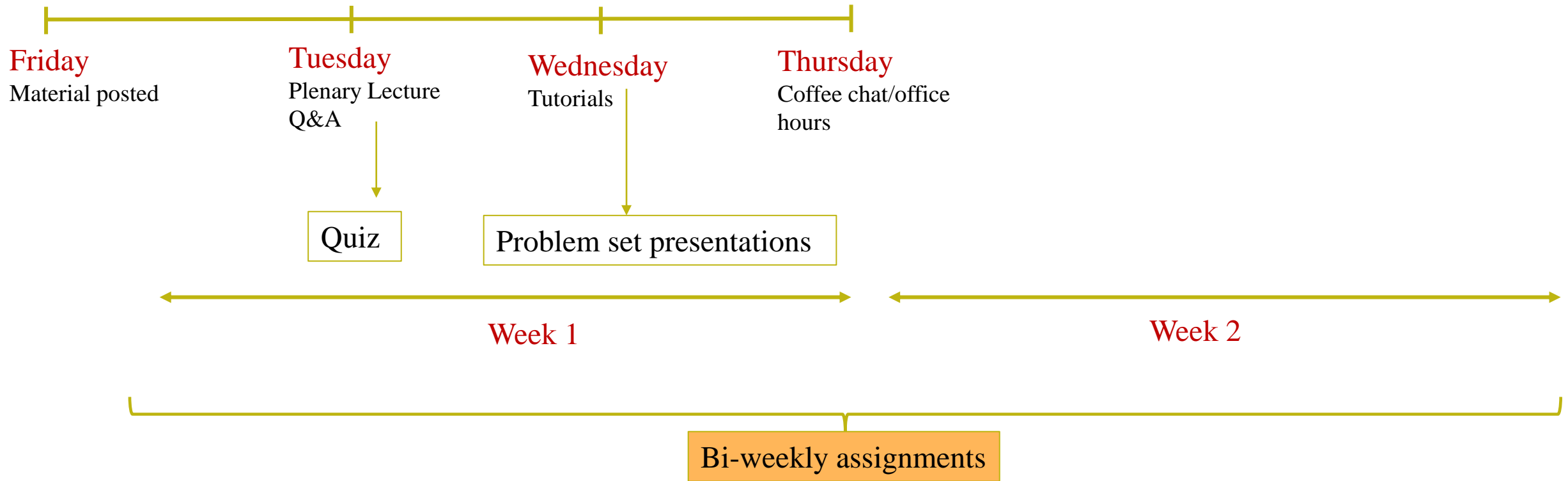Q&A

Wednesday
Tutorials

Thursday
Coffee chat/office hours

- Goals: students (1) actively work on assigned problem sets; and (2) learn from each other

- Structure:

  - Students self-sort into groups of max 4 participants

  - Rotating student representatives volunteer to present part of a problem set during each tutorial

  - Only groups who give 3 sufficient presentations get the bonus points [at the group level]

  - Work best in my experience: Voluntary structure, self-sorting, marginal points, coarse evaluation (sufficient/insufficient)

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Bi-weekly assignments

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A lot of work!
Only possible with
student assistants.

Three bi-weekly assignments [30/100 points]

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hours

- Goal: students spend extensive time on highly incentivized [30% final grade] medium-difficulty creative questions

- Structure:

  - 12 questions of which 10 needs to be fully correct to earn full points

  - Individual versions (5 different parameters per exercise, each assignment is unique)

  - Grading is automatic on Canvas [uniquely based on final answer + sample check of entire procedure]

  - Students can work together, but each needs to cover enough mileage by herself

  - Variations on the same topic → most questions cannot be answered with blind application of tools

  - Later assignments re-address some of the early topics [memoriz. → retrieval → applic. → memor. → retr. …]

Assessment for active learning

My guiding principles:

Active learning is about ownership of the tools (capacity to apply them to new scenarios)

- Assessment needs to have **enough variation** to avoid superficial mechanical application of methods
- Variation and creative application need **time**

Bi-weekly assignments

Active learning happens in multiple layers:

- memorization → retrieval → application → memorization → retieval…
- Assessments should be **continuous** (within limits)

Quiz

Problem set presentations

Bi-weekly assignments

Think about your own activities

1) Make a list of active learning activites you already apply or you consider to apply.

2) What are the learning goals of these activities?

To consider:

Quality criteria of assessments:

- Reliability

- Validity

- Objectivity

To consider:

Let's talk about validity:

- Measure what you aim to measure

- Coherence of learning goal, assessment performance and rated outcomes

- Pay attention to: constructive alignment

Developing assessments

Ensure coherence

- Learning activity and assignment (assessment) should be the same task.

- Learning goals (of activity) should match with the rating criteria.

Developing assessments

Example: group discussion → You can use a group discussions as a active learning activity and as an assessment.

- First: consider how many students you could observe during the discussion.

- Match learning goals (e.g. course content and aspects of preformance) with rating criteria: using correct terms/definition in the right way – active participation – etc.

- Describe rating criteria specifically and on different levels (e.g. in a grid/rubric).

Developing assessments

Example: group discussion.

Student A				
criteria	very good	good	sufficient	unsufficient
Meaningful contributions when speaking	Uses always right terms/definitions etc. in a suitable way.	Uses mostly right terms/definitions etc. in a suitable way.	Uses sometimes right terms/definitions etc. in a suitable way.	Uses merely right terms/definitions etc. in a suitable way.

Developing assessments

Develop your own assessments using your list of activities and learning goals.

Discuss what you have developed.

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Thank you for joining and participating!