

Session 08: Developing Homework Assignments and Exams

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Outline

- n What makes a good assignment?
 - n Homework assignment
 - n Exam
 - n Project
- n Nifty assignments – discussion
- n Meta-cognitive discussion

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Resources

- n *Teaching Tips*
 - n Ch.7, Ch.8 (pp.87-94), Ch.9, Ch.15 (pp.192-198, p.204), p.261, p.310
- n *Tools for Teaching*, by Barbara Gross-Davis
 - n Ch.28 (<http://teaching.berkeley.edu/bgd/quizzes.html>), Ch.29 (<http://teaching.berkeley.edu/bgd/allay.html>)
 - n Also Ch.25, Ch.27, Ch.30-31 – not online
- n Nifty Assignments (in Computer Science)
 - n <http://nifty.stanford.edu/>
- n *The Bushwhacking Alternative*, by Ed Sobey

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What Assignments?

Types:

- n Homework assignments
 - n Problem solving exercises, peer reviews
- n In-class activities
 - n Discussion, role playing
- n In-class presentations
- n Exams
 - n In-class or take-home
- n Projects

Also...

- n Graded or ungraded
- n Individual or group

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What Makes a Good Homework Assignment?

- n List what you believe is the *single* most important factor in making a good homework assignment.

- n What makes that factor so critically important?

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Potential Factors for a Good Homework Assignment

Circle the factors that at first you would not have thought of.

- a) Clearly relates to the (established) learning goals for the course
- b) Directly relates to material discussed in class
- c) Is intrinsically motivating and fun to do
- d) Challenges students just enough (but not more and not less)
- e) Provides clear and measurable goals and expectations
- f) Is relatively easy and/or fun to grade and provide feedback for
- g) Allows quick self-assessment of progress by each student
- h) Encourages and rewards creativity
- i) Permits learning to occur at different levels
- j) Doesn't place undue constraints
- k) Has a relatively low stakes (risk level)
- l) Allows for outcomes other than a complete success or a complete failure
- m) Is worded in a way that is inclusive of and respectful toward all students
- n) Is proof-read and professionally prepared
- o) Identifies a set of milestones that serve to guide students toward the completion of the overall objective
- p) Due date/time is responsive of student needs

Potentially Controversial Ideas for Homework Assignments

Circle what you believe to be correct.

- n Homework assignments benefit from having an element of competition.
 - n (A) Yes
 - n (B) No
- n Homework assignments should attempt to teach "core values" (that the instructor believes in) even if those fall outside the realm of the discipline.
 - n (A) Yes
 - n (B) No

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Potential Factors for a Good Exam

Which of the (same) factors below are *not* true for exams? Circle.

- a) Clearly relates to the (established) learning goals for the course
- b) Directly relates to material discussed in class
- c) Is intrinsically motivating and fun to do
- d) Challenges students just enough (but not more and not less)
- e) Provides clear and measurable goals and expectations
- f) Is relatively easy and/or fun to grade and provide feedback for
- g) Allows quick self-assessment of progress by each student
- h) Encourages and rewards creativity
- i) Permits learning to occur at different levels
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- m) Is worded in a way that is inclusive of and respectful toward all students
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- o) Identifies a set of milestones that serve to guide students toward the completion of the overall objective
- p) Due date/time is respective of student needs

Recipe for Making a Lousy Exam

- n Test mostly memory / recall without relating facts and phenomena to broader concepts.
- n Make it too easy or too hard for most students.
 - n This way you won't be able to distinguish below average from average from good achievers.
 - n Students won't be able to tell which group they are in either.
- n Don't match the learning goals for the course.
- n Stray far from what assignments have prepared students for (in terms of content and skills).

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Aspects Important for Exams but Not for Homework Assignments

- n Problems must be relatively easy in order to be completed in a limited time
- n Students usually take exams at the same time and in the same place
 - n Biases results in favor of those who operate well at those hours / days / locations
- n Students must generally work on their own and quietly (on CS exams)
 - n Biases strongly in favor of introverted types
- n Varying the types of questions (multiple choice, short answer, essay)
 - n Allows for quicker grading and for a more objective assessment of a broader range of skills
- n Format and layout matter (as time savers)

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What Makes a Good Project?

- n List what you believe is the *single* most important factor, beyond those already mentioned, in making a good exam.

Note: Your answer will probably be CS-specific and may not hold for other disciplines.

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My Take on What Makes a Good Project

- n Gives students exposure to practical tools used in the discipline in a professional setting
- n Allows the application / exploration of key concepts in practice
- n Is well constrained so that it is clear what aspects are most important to focus on
- n Is reasonably well specified at the start, but not overspecified
 - n Exception: if a learning goal of the course is for students to be able to dig for the requirements, as in a software engineering or a capstone course

Note: Those may not hold for other disciplines.

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