## Crib Sheets Help Students Prioritize and Organize Course Content

MOST FACULTY ARE familiar with the strategy: students are allowed to bring into the exam a card or sheet of paper that they've prepared beforehand and that contains information they think might help them answer exam questions. I became convinced of the strategy's value when my husband was an undergraduate. He and his engineering study buddies convened at our place the night before an exam to decide what they should put on the $4 \times 6$ note card they were allowed to take into a mechanical engineering course. They spent hours in heated discussion. They thought they were just figuring out what went on the card, but in fact they were sorting out, prioritizing, organizing, and integrating the content of the course. Their discussion accomplished that way more effectively than any review session I had conducted. Of course, being engineers, they decided on what they needed and then reduced the size so that when they got it on the card they needed a magnifying glass to read it.

Just recently it came to me that preparing one of these crib sheets might be an excellent activity for an in-class review session. If students attend the review session, they get to work with other students and prepare a crib sheet which they submit at the end of the session and will be returned attached to their exam. I think this would get most students attending the session and actually doing some substantive reviewing during it. If the activity started with a time of discussion (probably in a small groups) over what to put on the card, then the session could end with the blank cards being passed out and students having 15 minutes to make their individual cards.

I've talked with some faculty who call these cards "cheat sheets" and won't let students use them under any circumstances. One told me, "Anything that's on that sheet is something the student doesn't have to learn." I suppose it depends on the course and kind of exam, but in general, exam situations are pretty artificial. How often in your professional life do you have a limited time window and no access to resources or
expertise? There are occasions, I know, but they aren't all that frequent. And it seems to me that in this age of technology, we need to be purposefully teaching students how to access, organize, and apply information.

## What students learn when creating their crib sheets

Students respond positively to the crib sheet strategy. They don't talk about how preparing the sheet helps them prioritize and organize content. They see the cards as stress relievers. I remember one telling me, "I go into the exam with my card and I have at least three or four important things that I know I'm not going to forget."

Another faculty member told me that he has students attach their crib sheets to the exam when they turn it in. He frequently finds on the cards information students needed to answer a question but they didn't or couldn't apply it to a particular problem. This situation makes a great discussion topic for the exam debrief session. After showing some examples, it's pretty easy to make the point that a student can memorize material, or in this case have it right there, but if he doesn't know how to use it, the information is pretty much worthless.

I've also heard of faculty grading the crib

sheets, although I've never seen examples of the criteria used to assess them. I think it might be more beneficial to have students assessing the value and usefulness of the information they decided to put on their crib sheet. They could discuss or write responses to prompts like these:

- How many questions on the exam did your crib sheet help you answer?
- Did you have information on the crib sheet that you didn't use at all?
- How did you decide what to put on your crib sheet?
- If you had the opportunity to revise your crib sheet, what changes would you make?
- What have you learned from preparing this crib sheet that you want to remember when you make the next one?

Maryellen Weimer, PhD; Teaching Professor Blog/ Faculty Focus; Crib Sheets Help Students Prioritize and Organize Course Content; February 27, 2013
[ http://www.facultyfocus.com/articles/teaching-professor-blog/crib-sheets-help-students-prioritize-and-organize-course-content/ ]; February 27, 2013.

## Fall Registration Begins - April 8 Faculty Meeting - April 10 Classes End - April 12 Exams - April 15-19 Commencement - April 20 Grades Due - April 22 Faculty Meeting - April 24

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# Increasing Learning when Returning Exams 

Following are various methods that can be used to increase learning when returning exams. Each method can be applied as directed or modified to meet individual needs. Some methods may not work for large classes.

## General Procedures for Returning Exams in Class

- Design your exams effectively
- Before students take the exam, give students an idea of the types of test questions to expect on the test and the cognitive processes they will need to use in answering the questions (e.g., recall/remember, understanding, apply, analyze).
- After students take the exam, study the student responses. Notice questions with a high number of students selecting a wrong answer. Ask yourself if you should rewrite the test question, teach something differently or encourage students to study harder.
- Give students points for any missed questions that you didn't teach well enough or that are poorly written questions.
- Return exams to students with an indication of which items were missed and an answer key to indicate the correct responses.
- Allow ample time for students to ask questions about the exam, clarify any misconceptions and to receive feedback from you. This makes the test a learning experience as well as makes the students feel like they are being treated fairly. Plan time to review every question on the exam.
- Be prepared to acknowledge poorly written items or teaching failures on your part. Welcome student critiques, but know when to cut off discussion by inviting students to discuss their concerns after class.
- Allow students to keep a copy of the exam only if you plan on never using the test questions again.
- Consider administering a short evaluation to ask for student feedback about your exams


## Group Exam Analysis -- Option A

Step 1: Make a complete grading key

- When you create the exam, develop a complete grading key for use in grading the exams and for students to use to analyze in class their responses to the exams.
- In the answer key include feedback for all answer options on the multiple-choice and matching questions. Include explanations for why correct answers are correct and
wrong answers are wrong.
- In the case of essay questions, the grading key should contain an ideal answer.
- Also, when you grade the exams, revise the answer key to account for unanticipated answers.

Step 2: Start class by organizing students into groups

- Divide the students into groups to discuss each test item together. Students teach and learn with one another as they figure out together in small groups what went wrong and right on their exams.
- Invite students to use notes, text and other materials to analyze the correct answer to each item.

Step 3: Hand back the exams and the answer key

- Make a copy of the exams. You keep the original, the students get the copy.
- Be sure that the scores on the exams are not open to others' view so students can keep their score confidential.
- When students receive their exams back, they are usually eager to find out what questions they answered wrong and why. The answer key is therefore a great teaching tool because students can see why certain answers were right and other answers were wrong.
- As the teacher, you should be a resource to supportstudents in resolving discrepancies. As you listen in to the different groups you may also discover areas for further clarification in your teaching or in your test questions. These sessions not only help students learn but they also provide you with feedback with regards to the effectiveness and clarity of your teaching.

Step 4: At beginning of next class give a short quiz

- At the start of the next class give a short quiz with the 5 questions most students missed on the exam. You can do this activity for learning only or you can also count the quiz points toward grading.


## Take-Home Exam

 Opportunity -- Option BStep 1: Students take exam

- Students complete the closed book exam in-class (or in the Testing Center).


## EXAMS

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Step 2: Students receive a second copy of the exam that they can complete at home as an open-book exam.

- After taking the first exam students may choose whether or whether not they want to complete the take-home exam. However, they have to make that decision without knowing their score on the inclass exam. This gives students a chance to gage their own performance.
- For the take-home exam, you score only those questions that the students missed on the inclass exam; then add half of the points (or whatever amount of points you decide) students earn on the take-home exam to their score on the in-class exam.

Step 3 (optional): Follow steps $1-3$ of the Group Exam Analysis - Option A

## More Ideas for Increasing Learning from Exams

Include a Blank Question on the Exam

- On the test, let students write a test question or problem they were well prepared to answer, yet were not asked on the exam. They also need to answer their proposed question. You can grade students' added test questions on their
answer to the question and/or on the quality of the question (appropriateness, difficulty level).


## Try Group Testing

- Group testing is an extensive and well researched process written about by Larry K. Michaelson (Designing Effective Group Activities: Lessons for Classroom Teaching and Faculty Development, Larry K. Michaelson, L. Dee Fink, Arletta Knight, University of Oklahoma.) The process includes taking tests individually and again as a group. For additional information about implementing this idea, refer to the resources listed below.


## Encourage Students to Analyze Their Learning and Study Habits (Metacognition)

- Have students make a list of the number of each question missed.
- Invite students to go back through their notes and find out how many of those questions were from days they were not in class.
- Tell students which test questions came from the reading and which came from classroom teaching.
- Invite students to determine if they are missing more questions from the reading or from class notes. Ask students who miss no questions from either reading or class notes to tell the rest of the class how they study and prepare for the exam.
- Invite students to determine how many questions they missed after changing their original answers. Ask them if it pays to change their answers.
- Have students summarize on a piece of paper what they learned from this entire exercise.
- Collect the papers and redistribute them to each student the week before the next exam.


## Resources

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Tim Bothell, Faculty Development Coordinator Assessment of Student Learning; BYU Testing Center; Brigham Young University; [ http://testing.byu.edu/ info/handbooks/Increasing\%20Learning\%20When\%20

Returning\%20Exams.pdf ] February 27, 2013

## Tips for Improving Testing and Grading (Survival Skills for Scholars)



Authors: John C. Ory \&
Katherine E. Ryan
Paperback: 152 pages
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(August 10, 1993)
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Using detailed examples, checklists and exercises, the authors show how to develop, use and grade classroom examinations. They provide a thorough, step-by-step discussion of general testing and grading issues, including: deciding on the content of an exam; assessing difficulty levels; writing different kinds of test items; scoring different test items; evaluating different subject areas; helping students review for an exam; and developing grading methods and strategies.

During exams, students look up for inspiration, down in desperation, and left and right for information.

- Unknown quotes

Study is the bane of childhood, the oil of youth, the indulgence of adulthood, and a restorative in old age...

- Walter Savage Landor quotes

