Study skills for the long run.

Now it matters... sort of.
“I just get so frustrated when they get over here on my service....I ask a simple question in rounds and get blank stares...”

- anonymous WSU clinician
Pass Classes

Long term retention

Ace classes
“Mr. Osborne, may I be excused? My brain is full.”
STUDY WITHOUT STRESS: Mastering Medical Sciences

Eugenia G. Kelman & Kathleen C. Straker,
References and Resources

Counseling & Wellness website, Study Skills section:
http://www.vetmed.wsu.edu/counseling/studyskills.aspx

“What works, what doesn’t” Scientific American Mind, 2013
Meta-analysis of 700+ scientific articles on 10 common study techniques

“What Will Improve a Student’s Memory?” D. Willingham, 2009 (on website)

Becoming a Master Student, Dave Ellis, 2003

Study without Stress: Mastering Medical Sciences, Kelman and Stracker, 2000

Make It Stick

• Cramming effective only in short term, for long term memory other strategies required [complaints of 4\textsuperscript{th} yr. faculty]

• To learn, retrieve – effortful recall. (doesn’t feel as good but much more effective for long term retention).

• Delayed practice more effective than cramming.

• Distributed practice more effective than cramming.

• Practically speaking, this means any strategy that incorporates self or group quizzing, spaced out, and mixed with other topics will be more effective than reading and rereading notes.
Research has shown that *effortful recall* is the strongest promoter of long term retention.
Making the most of your time

Expect to spend 60-65 hours/week in learning activities… including about 25 hours/week studying

• A regular study schedule protects against cramming, lack of sleep, stress, and vulnerability to illness

• Planner use to track assignments, study hours, exams, and outside commitments can improve exam prep and decrease procrastination

• Without a planned schedule, multiple exams/week = poor allocation of time across subjects
<table>
<thead>
<tr>
<th>What works</th>
<th>What doesn’t</th>
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<tbody>
<tr>
<td>Self-testing during daily study</td>
<td>Re-reading, re-copying</td>
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<tr>
<td>Distributed study sessions</td>
<td>Cramming / massed study</td>
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<tr>
<td>Continued reviews after you know the material</td>
<td>Highlighting text or notes</td>
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<td>Creating conceptual frameworks of related material</td>
<td>Rote memorization</td>
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<td>Develop memorable CUES: mnemonics</td>
<td>Late night studying</td>
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<td>Pressure &amp; sleep deprivation</td>
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<td>Multi-tasking while studying</td>
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Distributed practice vs. massed practice

Keppel: massed learners forgot almost 2/3s of items after 1 week

Distributed learners recalled over 90% of items after 1 week

Research meta-analysis:
Average person using distributed learning sessions remembers better than 67% of those using massed learning, and these gains persist over years. (Donovan and Radosевич)
Self testing

Cornell Note Taking  
Flashcards

Chapter review questions

Retake prior quizzes and tests

Quiz study partner from notes

Highly effective across wide range of content and time intervals – forms multiple retrieval pathways
# Distributed study periods & breaks

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Keys to memory

- Organization of facts into logical patterns
- Distributed practice (vs. massed)
- Repetition
- Effortful Recall
- Amount of time between learning & recall
- Intent to remember
- Varied input modality
4 Steps to Studying without Stress

• Pre-reading

• Note making

• Reviewing

• Self-testing
What is Pre-reading?

- Rapid skimming
- Looking for the big picture
- Getting a sense of the vocabulary
- Spotting the patterns
- Analyzing for cause & effect, comparisons & contrast, time sequencing, etc.
- A 10-15 minute activity
Students who Pre-read:

• Comprehend more from lecture time

• Have a longer retention rate of information

• Get a jump start on creating their study notes
What to look for while pre-reading

• Key ideas
• Main subordinate details
• Relationships between key ideas & details
• Relationships between key ideas (enumeration, comparison, contrast, time sequence, cause & effect, classification)
The Importance of Note-making

• There is too much material to reread

• Without them, you can’t get repeated, spaced review—the key to accurate & detailed recall

• They can be used to self-test and easily identify what needs more intense review
Notes & self-test in one

Review notes w/in 24 hours & add ?s

Quizzing easily identifies unlearned material

Active method for notating assigned reading

Prompts user to summarize & synthesize concepts
Cornell Note Taking Method

The 5 “R’s”
Cornell Notes

- Draw an off-center "I" on your note paper.

Leave room to write!
Uses for well-made notes

- Block/midterm/preliminary exams
- Final course exams
- Licensing exams
- Clinical cases
- Other presentations

“If you can’t make a set of condensed, organized notes, you don’t understand the material.”
What makes a good set of study notes?

• Clues to all essential information on the topic
• Highly organized information in a format that reflects logical relationships among the pieces of information to be remembered
• Visual interest
• Condensed enough so they can be reviewed repeatedly
• A format that permits self-testing
Cards

Advantages:
• best way to zero in on details you don’t remember
• easy to sort

Disadvantages:
None!
Charts: good for information to compare & contrast

Advantages:
• Break down material into main ideas & details
• Logical context for association
• Clustered info is easier to remember
• Makes reviewing & self-testing easier

Disadvantages:
None!
Flowcharts: good for logical progression of a sequence

Advantages:
- helps break a sequence down into components
- creates a visual representation
- logical context for organization

Disadvantages:
- none, as long as they’re useful for reviewing & self-testing
Diagrams: when name & location of a structure is key

Advantages:
• logical way to make notes about a structure
• a pictorial representation is easier to remember
• easy to sort into “know” & “don’t know” for review & self testing
• can be recreated during testing

Disadvantages:
limited to use with structures
Mapping: good for problem-oriented learning

Advantages:
• useful for organizing what you already know about a topic
• creates an overview

Disadvantages:
• difficult skill to acquire
• not as helpful for review & self-testing
Tips for Reviewing & Self-testing

• Keep track of reviews & self-tests

• Reviewing is not memorizing all at once

• Understanding vs. memorizing

• Use old exams wisely
More Concentration = Less Study Time
7 Factors Affecting Concentration

1. Alive, Awake, Alert
2. External Distractions
3. Internal Distractions
4. Work Pace
5. Discriminative Stimuli
6. Mood Control
7. Endurance
Test taking preparation

1. I clarify what topics & kinds of questions will on exams.

2. I study early & long enough to be prepared for exams.

3. I make a prioritized checklist of review materials and allocate study hours accordingly.

4. I study in 1-3 hour periods, distributed, with breaks.

5. I review using different methods: self-testing, prior exams, study groups, flashcards, open labs, etc.

6. I get 8 hours’ sleep the night before exams.
Post-mortem

**Preparation**: study methods, topics, time spent, distributed study, materials

**Identify key reasons for lost points**: difficulties w/concept recall, definitions, studied wrong material, lack of practice, unclear expectations, focus, anxiety, ran out of time, etc.

**What will I do differently?** Identify at least three specific things. Consider preparation, time management, types of review, mastery of concepts, use of review materials, knowledge deficits

**Reminders in planner** about your revised plan for next exam