GRAD 961: Cognition, Teaching, and Learning
Summer 2016

Professor: Victor Benassi, Ph.D.

Contact Information:
Email: Victor.Benassi@unh.edu

Online Office hours:
Contact me by email between 10:00 am – 5:00 pm, Monday – Friday.

If you want to talk by phone, send me an email message and we will arrange a time when we can speak.

I will have some availability on email outside normal online office hours. I will respond as soon as I can.

GRAD 961.1 - Online course, no campus visits, meetings, or classroom sessions.

Canvas©

In this course, we will use ***Canvas***© as a means to access and transmit information and to interact with one another.

Information on Canvas: **https://www.unh.edu/it/kb/article/mycourses-by-canvas-login.html**
Login: **https://cas.unh.edu/cas/login?service=https%3A%2F%2Fmycourses.unh.edu%2Flogin%2Fcas**

Course Overview

We will examine theories and research in the area of cognitive science (focusing on the field of cognitive psychology) that is relevant to understanding and promoting student learning in educational contexts. Because our GRAD courses are key components of UNH's Cognate in College Teaching and focus on teaching and learning at the college/university level, our emphasis will be on learning about applications of science of learning in post-secondary educational settings. (As you will quickly learn, however, the scholarship we consider also has direct application in pre-college academic settings.) Together, we will address contributions of several major fields of cognitive science toward enhancing our understanding, improving our teaching, and fostering student learning.

Required Readings

Benassi, V. A., Overson, C. E., & Hakala, C. M. (2014). *Applying science of learning in education: Infusing psychological science into the curriculum*. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/asle2014/index.php (free access)

In addition, readings, which will consist of articles and book chapters, will be assigned. The readings will be accessed through *Canvas*. Refer to the Course Calendar for information on the dates when topics will be covered.

Expected Outcomes

By the end of GRAD 961, students who successfully complete the course should be able to:

1. *describe* and *discuss* in a sophisticated manner research, theory, and practice related to applications of principles from cognitive science to academic contexts;
2. *evaluate* and *integrate* empirical research on the science of learning;
3. *write* a clear, concise, and conceptually sound paper related to an area of the science of learning (as applied to academic courses).

Course Format

The course will be conducted in a totally online format. Readings and other activities will be assigned.

1. For each topic, there will be one of more multimedia presentations and an assigned set of readings.
2. For each topic, you will make an initial post on our course Discussion list that will be a response to a prompt/question that I provide.
3. For each topic, after you complete your initial post on the Discussion list, you will write a substantive comment on one other student's initial post. (For each assignment, respond to the initial post of a *different student*.)
4. During the last week of the course, you will write an integrative essay in response to a writing prompt/question that I provide. This essay will require understanding and integration of the material addressed during the course.
5. You will write a brief paper. This paper will review research literature on a topic of particular interest, followed by a set of educational implications and recommendations. You will select the topic by the end of the first week of the course. The topic must be approved by me before you begin to work on it.
6. There will be three types of assessment in the course.
   A. I will monitor each student's involvement and contribution to the online discussion of assigned topics. You will maintain an A for this work as long as you contribute at a high level. If I observe a drop off from the expected level of contribution, I will notify you and suggest corrective action. (This component will contribute toward 60% of your course grade.)
   B. I will read and grade your paper on your approved topic. (This component will contribute toward 30% of your course grade.)
   C. I will read and grade your integrative essay. (This component will contribute toward 10% of your course grade.)

For our weekly assignments, we will follow the same general approach:

An assignment begins on a Monday. By Thursday, you will have watched assigned multimedia presentation(s), read assigned readings, and made your initial post on the Discussion area in *Canvas*. By Sunday, you will have posted a comment on one other student's Discussion post.

Course Grades

Criterion:		Weight:
• *Canvas* Discussion Posts	(range = 0% to 100%)	.60
• Paper	(range = 0% to 100%)	.30
• Integrative Essay	(range = 0% to 100%)	.10

For example, (after first changing every score to a proportion)

	Score		Weight	Product
Discussion	.94	X	.60	.56
Paper	.92	X	.30	.28
Exam	.89	X	.10	.09

Weighted Score = (.94 X .60) + (.92 X .30) + (.89 X .10)
= .56 + .28 + .09
= .93 (translates to a A)

Course Grade

A .93 – 1.00
A- .90 - .92
B+ .87 - .89
B .83 - .86
B- .80 - .82
Not passing (below .80)

***Canvas* Discussion Assignments**

I will post discussion topics in Discussion area of our course Canvas site the week.

Research Project and APA Style Paper

Each student is required to write a paper on a topic that I have approved. This paper will briefly review research literature on a topic of particular interest, followed by a set of educational implications and recommendations. The paper can focus on a topic we address in the course or on one that we will not deal with in the course. You can take a look at the edited book by Benassi, Overson, and Hakala (reference above) for a broad range of topics that we address and do not address in the course. In addition, check out these websites (and many others) for additional information:

- ✓ https://legacy.wlu.ca/documents/60931/25-learning-principles-to-guide-pedagogy_(1).pdf
- ✓ http://www.psychologicalscience.org/index.php/publications/journals/pspi/learning-techniques.html
- ✓ http://gsi.berkeley.edu/gsi-guide-contents/learning-theory-research/memory/
- ✓ http://library.mpib-berlin.mpg.de/toc/z2012_233.pdf
- ✓ http://www.psychologicalscience.org/journals/pspi/PSPI_9_3_editorial.pdf

In addition, I would be happy to speak with you about possible topics for your paper. Pick a topic that interests you and that you can consider in relation to your own current or future teaching.

Requirements for Paper

The *main body* of the paper (i.e., not including references, tables, figures, notes, etc.) should be between 7 [full] and 9 pages (double-spacing, one inch margins all around, Times Roman font). I want you to select a topic/question that you can address in a fresh way. I will be available to provide advice/help as you wish in choosing a good topic for your paper. The range of topics covered in this course is very broad and I believe that each of you will be able to select an interesting topic. Review issues of

Current Directions in Psychological Science for examples on possible formats for your paper. (http://www.psychologicalscience.org/journals/index.cfm?journal=cd&content=cd/home)

Below are links to several articles from *Current Directions* that deal with science of learning that you can refer to as examples of the type of paper I want you to prepare:
http://cdp.sagepub.com/content/21/5/279.full.pdf+html (Carpenter)
http://cdp.sagepub.com/content/16/4/183.full.pdf+html (Rohrer and Pashler)
http://cdp.sagepub.com/content/22/5/367.full.pdf+html (Uttal, Miller, and Newcombe)
http://cdp.sagepub.com/content/21/3/157.full.pdf+html (Karpicke)

How will I grade your final paper? I will assign a letter grade based on the following rubric:

A, A-	Exceptional. Original. Excellent content and analysis. Synthetic.
B+	Outstanding. Excellent content and analysis. Elements of originality, synthesis—but not quite there.
B	Strong paper. Excellent content and analysis. Hints of originality and synthesis.
B-	Satisfactory. Arguments and facts present, but originality, analysis, and synthesis lacking
C+ and lower	Unsatisfactory

Target Dates to Keep in Mind. You should submit to me via Canvas:

May 30:

- Inform me about the topic of your paper, for my approval. Include a one paragraph description of your topic that includes a statement on the major points you plan to make in your paper.
- If you need more time to choose a topic, that's ok, but keep in mind the final paper is due by the end of the course (June 24)

June 6:

- Provide me with list of the references that you have secured to date.

June 13:

- Provide me with an outline of the general structure of your paper.

June 24:

- Submit the final copy of your paper, with references, tables, etc.

In addition to the above, recall from above that you are required to submit an integrative essay to me (by June 22), which will be a response to a question I provide to you.

Workload
This is a regular UNH two-credit graduate level course and the assigned work reflects this fact. UNH graduate courses are typically four credits and offered in a semester format. For our five-week summer course, we will have a reduced workload for a two-

credit course, but the time frame will be five weeks instead of the more typical 14-15 weeks.

Disability Services for Students

A graduate student with a documented disability is eligible for services provided by the Disability Services for Students office. It is the student's responsibility to contact me for information, visit http://www.unh.edu/disabilityservices/

Course Calendar

Assignment **TOPIC**

May 23 Start **Overview of Science of Learning; Meta-Cognition**

Initial Discussion Post Due May 26
Final Discussion Post Due May 29

Multimedia:
https://www.youtube.com/watch?v=7KsC9CktCno
John Dunlosky -- "Improving Student Success: Some Principles from Cognitive Science"

https://www.youtube.com/watch?v=tQsIlnuAB9E
Review of *Make It Stick* (Brown, Roediger, & McDaniel)—overview of cognitive principles of learning

Review Article:
Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*, 4-58.

May 30 Start **Role of Retrieval in Learning**

Initial Discussion Post Due **June 2**
Final Discussion Post Due **June 5**

Multimedia:
https://www.youtube.com/watch?v=4tz8gVPHhFE (Henry Roediger)

Review Article:
http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-863X2013000300397

Readings: (from *Applying Science of Learning in Education*)
http://teachpsych.org/Resources/Documents/ebooks/asle2014.pdf
Scroll down to Table of Contents and then click on the appropriate chapter title.

Generating Active Learning
Sharon Bertsch and Bryan Pesta 71

Supporting Self-Explanation in the Classroom
Jennifer L. Chiu and Michelene T.H. Chi 91

Potent Techniques to Improve Learning from Text
Khuyen Nguyen and Mark A. McDaniel 104

June 6 Start **Desirable Difficulties (Spacing and Interleaving)**
Initial Discussion Post Due June 9
Final Discussion Post Due June 12

Multimedia:
https://www.youtube.com/watch?v=XPllm-gtrMM (Comments by Robert Bjork)

https://www.youtube.com/watch?v=_tsJyFBHezY (Informal Conversation with Robert Bjork)

Review Chapter:
http://bjorklab.psych.ucla.edu/pubs/EBjork_RBjork_2011.pdf (Elizabeth Bjork and Robert Bjork)

Readings: (from *Applying Science of Learning in Education*)
http://teachpsych.org/Resources/Documents/ebooks/asle2014.pdf
Scroll down to Table of Contents and then click on the appropriate chapter title

Spacing and Interleaving of Study and Practice
Shana K. Carpenter 131

When and Why Introducing Difficulties and Errors Can Enhance Instruction
Courtney M. Clark and Robert A. Bjork 20

June 13 Start **Cognitive Load and Multi-media Learning**
Initial Discussion Post Due June 16
Final Discussion Post Due June 19

Multimedia:
https://www.youtube.com/watch?v=Q5eY9k3v4mE
Interview with Richard Mayer on Learning with Multimedia. Watch the entire interview.

http://hilt.harvard.edu/event/richard-e-mayer-uc-santa-barbara
This is a presentation with Richard Mayer providing excellent examples of his research. Watching it is optional, but I recommend you do so, because you can observe Mayer talking about the kinds of studies reviewed in the Review Chapter listed directly below.

Victor Benassi —"Teaching, Learning, and Technology" (This is a presentation I gave on our some of research at UNH on multimedia learning in academic courses.)

Review Chapter:
http://teachpsych.org/Resources/Documents/ebooks/asle2014.pdf
Scroll down to Table of Contents and then click on the appropriate chapter title.

Research-Based Principles for Designing Multimedia Instruction
Richard E. Mayer..... 59

Reading this brief chapter: (from *Applying Science of Learning in Education*)
http://teachpsych.org/Resources/Documents/ebooks/asle2014.pdf
Scroll down to Table of Contents and then click on the appropriate chapter title.

Applying Multimedia Principles to Slide Shows for Academic Presentation
Catherine Overson 252

June 20 **Final Writing Assignments**

Essay Due	June 22
Paper Due	June 24

June 24 **Course Ends**