

**GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
GRADUATE SCHOOL OF EDUCATION**

**EDEP 550:001
Theories of Learning and Cognition
Fall 2005
Thursday (4:30–7:10 p.m.)
Robinson B, Rm 111**

PROFESSOR

Name: Jo-Anne Manswell Butty, Ph.D.
Office Phone: (202) 806-8503
Office Hours: Thursday, 7:10–8:10 p.m. and by appointment
Email: jbutty@gmu.edu

COURSE DESCRIPTION

This course explores theoretical perspectives on learning and cognition and the relation of these theories to the construction of learning environments, student motivation, classroom management, assessment, and the role of technology to support teaching and learning.

NATURE OF COURSE DELIVERY

The course is structured around readings, reflections on those readings, class projects, technology activities, and exams. This course will be taught using lectures, discussions, and relevant group activities. The course has a Blackboard site:
<http://blackboard.gmu.edu>.

STUDENT OUTCOMES

This course is designed to enable students to

- Demonstrate an understanding of principles and theories of learning and cognition related to biological, behavioral, cognitive, social learning, and information processing models of learning and memory.
- Develop an increased awareness of the ways in which theories of learning and cognition can be applied to instruction.
- Become familiar with aspects of contemporary issues in education related to the science of learning.
- Understand theoretical/research frameworks for explaining differences between novice and expert learners, critical thinking, creativity, and problem solving.
- Understand the relationship between a range of technologies and learning, critical thinking, and problem solving processes.
- Develop an appreciation for and understanding of the variance of developmental and learning needs of culturally diverse and exceptional learners.
- Demonstrate an understanding of how theoretical approaches to learning and cognition relate to classroom management, instruction, and assessment.

- Design instruction that is consistent with the developmental and learning needs of today's students.
- Develop and reinforce critical thinking, oral presentation, technological, and writing skills.

RELATIONSHIP TO PROGRAM GOALS AND PROFESSIONAL ORGANIZATIONS

The program goals are consistent with the following learner-centered psychological principles (APA Division 15) outlined by the American Psychological Association Presidential Task Force in Education.

- Principle 1: The Nature of Learning Process
- Principle 2: Goals of the Learning Process
- Principle 3: Construction of Knowledge
- Principle 4: Strategic Thinking
- Principle 5: Thinking about Thinking
- Principle 6: Context of Learning
- Principle 7: Motivational and Emotional Influences on Learning
- Principle 8: Intrinsic Motivation to Learn
- Principle 9: Effects of Motivation on Effect
- Principle 10: Developmental Influences on Learning
- Principle 11: Social Influences on Learning
- Principle 12: Individual Differences in Learning
- Principle 13: Learning and Diversity
- Principle 14: Standards and Assessment

Please see:

American Psychological Association (1997). *Learner-centered psychological principles: A framework for school redesign and reform*. Retrieved August 24, 2005, from <http://www.apa.org>

REQUIRED TEXT

Ormrod, J. E. (2004). *Human learning* (4th ed.). Upper Saddle, NJ: Merrill.

SUPPLEMENTARY READINGS

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.) (2000). *How people learn: Brain, mind, experience, and school*. Committee on Developments in the Science of Learning, National Research Council. Washington, DC: National Academy Press. [Online at <http://www.nap.edu/books/0309070368/html/>]

Bowman, B. T., Donovan, M. S., & M. S. Burns (2004). The importance of individual and cultural variations. In B. T. Bowman, M. S. Donovan, & M. S Burns (Eds.), *Eager to learn: Educating our preschoolers* (pp. 59-126). Committee on Early Childhood Pedagogy, National Research Council. Washington, DC: National Academy Press. [Online at <http://www.nap.edu/catalog/9745.html>]

- Greenspan, S. (1997). *The growth of the mind and the endangered origins of intelligence*. Reading, MA: Perseus Books.
- Schunk, D. H. (2004). *Learning theories: An educational perspective* (4th ed.). Upper Saddle River, NJ: Merrill.
- Starko, A. J. (2001). *Creativity in the classroom: Schools of curious delight* (6th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

COURSE REQUIREMENTS, PERFORMANCE-BASED ASSESSMENT, AND EVALUATION CRITERIA:

1. **Attendance and Participation:** Due to the importance of lectures and classroom discussions to your total learning experience, each student is expected to attend class regularly and participate in class discussions. Readings must be completed **before class**. Attendance, punctuality, preparation, and active contribution to small and large group efforts are essential. These elements of your behavior reflect the professional attitude implied in the course goals and will account for 10% of your course grade. If you must miss a class, notify the instructor (preferably in advance); however, you are still responsible for completing all assignments and readings for the next class. You are also responsible for getting assignments in on time and catching up if you are absent. (See rubric for attendance and participation.)
2. **Abstracts:** Each student is required to prepare three (3) abstracts of recent articles (within the last five years) that address any aspect of human learning (abstract guidelines will be provided).
3. **Oral Presentation:** Each student will select a relevant article related to a chapter to review and make a detailed oral report to the class. Students are expected to present the class with an outline of their presentation, a one-page summary showing the relationship between the article and the chapter, and a copy of the article. Feel free to make your presentations as creative as possible.
4. **Mini projects:** Mini individual and group projects will be assigned throughout the course.
5. **Examinations:** Three examinations will be administered during the course.

RUBRIC FOR ATTENDANCE AND PARTICIPATION

ELEMENT	LEVEL OF PERFORMANCE			
	Distinguished (9-10 pts.)	Proficient (8 pts.)	Basic (7 pts.)	Unsatisfactory (6 or less pts.)
Attendance & Participation	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence; the student actively participates and supports the members of the learning group and the members of the class.	The student attends all classes, is on time, is prepared and follows outlined procedures in case of absence; the student makes active contributions to the learning group and class.	The student is on time, prepared for class, and participates in group and class discussions. The student attends all classes and if an absence occurs, the procedure outlined in this section of the syllabus is followed.	The student is late for class. Absences are not documented by following the procedures outlined in this section of the syllabus. The student is not prepared for class and does not actively participate in discussions.

EVALUATION

The grading system for this course is based on successful completion of all the following tasks:

Class Participation and Discussion	10 %
Abstracts	15 %
Oral Presentation	15 %
Mini Projects	15 %
Examinations (3)	45 %
TOTAL	100 %

Grading Scale

A+ = 98-100%	A = 93-97%	A- = 90-92%
B+ = 88-89%	B = 83-87%	B- = 80-82%
C = 70-79%	F = Below 70%	

Note About Student Performance:

It is expected that each student will:

1. Read all assigned materials for the course.
2. Attend every class session and be on time to class.
3. Participate fully in all small/large group activities that reflect critical reading of the materials.
4. Complete three abstracts.
5. Orally present an article and link it to the chapter being presented.
6. Complete three examinations.

Please Note

Written Assignments: All written assignments must be completed on a word processor. Assignments are to be turned in at the beginning of class on the date due. Late assignments will not be accepted without making prior arrangements with the instructor. In addition, all work submitted in this course must be your own or attributed to the proper author using the appropriate research reference format (APA).

Out-of-Class Sessions: One or more of our class sessions may be held out-of-class (online). This class (or classes) is to be considered a regular instructional time, and the assignments given are the equivalent of a full, in-class session. The out-of-class hours include research, use of professional websites, online discussions, readings, and other assignments. Formal online discussions will take place at: <http://blackboard.gmu.edu>

Course Syllabus Subject to Change: The course syllabus may be subject to change pending class progress in meeting objectives. If changes are made, students will be given advanced notice and ample time to adjust their schedules.

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT STATEMENT OF EXPECTATIONS

The Graduate School of Education (GSE) expects that all students abide by the following:

- Students are expected to exhibit professional behavior and dispositions. See gse.gmu.edu for a listing of these dispositions.
- Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code.
- Students must agree to abide by the university policy for Responsible Use of Computing. See <http://mail.gmu.edu> and click on Responsible Use of Computing at the bottom of the screen.
- Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See www.gmu.edu/student/drc or call 703-993-2474 to access the DRC.

**THEORIES OF LEARNING AND COGNITION
EDEP 550:001
FALL 2005**

CLASS SCHEDULE AND ASSIGNMENTS

<u>DATE</u>	<u>TOPICS AND ASSIGNMENTS</u>
September 1, 2005	Course Overview and Introductory Activity
September 8, 2005	Chapter 1, Learning: Definitions, Perspectives, and Issues
September 15, 2005	<p>Chapter 2, Learning and the Brain Elbert, T., Pantev, C., & Taub, E. (1995). Increased cortical representation of the fingers of the left hand in string players. <i>Science</i>, 270, 305-307. Greenough, W. T., Black, J. E., & Wallace, C. S. (1987). Experience and brain development. <i>Child Development</i>, 58, 539-559. Thompson, R. A., & Nelson, C. A. (2001). Developmental science and the media: Early brain development. <i>American Psychologist</i>, 56, 5-15. Tomlinson, C. A., & Kalbfleisch, M. L. (1998). Teach me, teach my brain: A call for differentiated instruction. <i>Educational Leadership</i>, 56(3), 52-55.</p> <p>Chapter 3, Behaviorism & Classical Conditioning Bouton, M. E. (1994) Context, ambiguity, and classical conditioning. <i>Current Directions in Psychological Science</i>, 3, 49-53. Herrnstein, R.J. (1977). The evolution of behaviorism. <i>American Psychologist</i>, 32, 593-603. Hollis, K. L. (1997). Contemporary research on Pavlovian conditioning: A "new" functional analysis. <i>American Psychologist</i>, 52, 956-965. Rescorla, R. A. (1987). A Pavlovian analysis of goal directed behavior. <u><i>American Psychologist</i>, 42, 119-129.</u></p>
September 22, 2005	<p>Chapter 4, Operant Conditioning Bowman, L. G., Piazza, C. C., Fisher, W. W., Hagopian L. P., & Kogan, J. S. (1997). Assessment of preferences for varied versus constant reinforcers. <i>Journal of Applied Behavior Analysis</i>, 30, 451-458. Lerman, D. C., & Iwata, B. A. (1995). Prevalence of the extinction burst and its attenuation during treatment. <i>Journal of Applied Behavioral Analysis</i>, 28, 93-94. Meehl, P. E. (1950). On the circularity of law of effect. <i>Psychological Bulletin</i>, 47, 52-75. Skinner, B. F. (1989). The origins of cognitive thought. <i>American Psychologist</i>, 44, 13-18.</p>

September 29, 2005

Chapter 5, Applications of Operant Conditioning

- Block, J. H. (1980). Promoting excellence through mastery learning. *Theory into Practice, 19*(1), 66-74.
- Bloom, B. S. (1984). The search for methods of group instruction as effective as one-on-one tutoring. *Educational Leadership, 41*(8), 4-17.
- Furst, E. J. (1981). Bloom's taxonomy of educational objectives for the cognitive domain: Philosophical and educational issues. *Review of Educational Research, 51*, 441-453.
- Reece, H. W., & Parnes, S. J. (1970). Programming creative behavior. *Child Development, 41*, 413-423.

Chapter 6, Effects of Aversive Stimuli

- Appel, J. B., & Peterson, N. J. (1965). Punishment: Effects of shock intensity on response suppression. *Psychological Reports, 16*, 721-730.
- Brown, I., Jr., & Inouye, D. K. (1978). Learned helplessness through modeling: The role of perceived similarity in competence. *Journal of Personality and Social Psychology, 36*, 900-908.
- Hiroto, D. S., & Seligman, M. E. P. (1975). Generality of learned helplessness in man. *Journal of Personality and Social Psychology, 31*, 311-327.
- Taylor, J. C., & Romanczyk, R. G. (1994). Generating hypotheses about the function of student problem behavior by observing teacher behavior. *Journal of Applied Behavior Analysis, 27*, 251-265.

ONE (1) ABSTRACT DUE

October 6, 2005

EXAMINATION 1, CHAPTERS 1-6

October 13, 2005

Chapter 7, Social Cognitive Theory

- Bandura, A., (1965). Influence of models' reinforcement contingencies on the acquisition of imitative responses. *Journal of Personality and Social Psychology, 1*, 589-595.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*, 1174-1184.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*, 75-78.
- Zentall T. R., Sutton, J. E., & Sherburne, L. M. (1996). True imitative learning pigeons. *Psychological Science, 7*, 343-346.

Chapter 8, Antecedents and Assumptions of Cognitivism

- Bransford, J. D., & Franks, J. J. (1971). The abstraction of linguistic ideas. *Cognitive Psychology, 2*, 331-350.
- Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review, 31*, 21-32.
- Kohler, W. (1959). Gestalt psychology today. *American Psychologist, 14*, 727-734.
- Tolman, E. C. (1932). The determiners of behavior at a choice point. *Psychological Review, 45*(2), 1-41

October 20, 2005

Chapter 9, Basic Components of Memory

- Atkinson, R. C., & Shiffrin, R. M. (1971). The control of short-term memory. *Scientific American*, 225(2), 82-90.
- Pashler, H. (1992). Attentional limitations in doing two tasks at the same time. *Current Directions in Psychological Science*, 1, 44-48.
- Tharpar, A., & Green, R. (1993). Evidence against a short-term store account of long-term recency effects. *Memory and Cognition*, 21, 329-337.

Chapter 10, Long Term Memory I, Storage

- Bobrow, S., & Bower, G. H. (1969). Comprehension and recall of sentences. *Journal of Experimental Psychology*, 80, 445-461.
- Graessar, A. C., & Person, N. K. (1994). Question asking during tutoring. *American Educational Research Journal*, 31, 104-137.
- Neisser, U. (1981). John Dean's memory: A case study. *Cognition*, 9, 1-22.

October 27, 2005

Chapter 11, Long Term Memory II, The Nature of Knowledge

- Alexander, P. A., & Judy, J. E. (1988). The interaction of domain specific and strategic knowledge in academic performance. *Review of Educational Research*, 58, 375-404.
- Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, 3, 149-210.
- Farah, M. J., Hammond, K. M., Levine, D. N., & Calvanio, R. (1988). Visual and spatial mental imagery: Dissociable systems of representation. *Cognitive Psychology*, 20, 439-462.
- Nisbett, R. E., & Bellows, N. (1977). Verbal reports about causal influences on social judgments: Private access versus public theories. *Journal of Personality and Social Psychology*, 35, 613-624.
- Reed, S. (1974). Structural descriptions and limitations of visual images. *Memory and Cognition*, 2, 329-336.

Chapter 12, Long Term Memory III, Retrieval, and Forgetting

- Brown A. (1991). A review of the tip-of-the-tongue experience. *Psychological Bulletin*, 109, 204-223.
- Collins, A. M., & Loftus, E. F. (1975). A spreading activation theory of semantic processing. *Psychological Review*, 82, 407-428.
- Corkill, A. J., Glover, J. A., & Bruning, R. H. (1988). Advance organizers: Concrete versus abstract. *Journal of Educational Research*, 82, 76-81.
- Heit, E. (1993). Modeling the effects of expectations on recognition memory. *Psychological Science*, 4, 244-251.
- Tulving, E., & Thomson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review*, 80, 352-373.

ONE (1) ABSTRACTS DUE

November 3, 2005

EXAMINATION 2, CHAPTERS 7-12

November 10, 2005

Chapter 13, Metacognition, Self-Regulated Learning, and Study Strategies

- Baker, L. (1989). Metacognition, comprehension monitoring, and the adult reader. *Educational Psychology Review, 1*, 3-38.
- Butler, D. L., & Winne, P. L. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research, 65*, 245-281.
- Kitsantas, A., Zimmerman, B. J., & Cleary, T. (2000). The role of observation and emulation in the development of athletic self-regulation. *Journal of Educational Psychology, 91*, 241-250.
- Mayer, R. E. (1996). Learning strategies for making sense out of expository text: The SOI model for guiding three cognitive processes in knowledge construction. *Educational Psychology Review, 8*, 357-371.
- Zimmerman, B. J. (1995). Self-regulation involves more than metacognition: A social cognitive perspective. *Educational Psychologist, 30*, 217-221.

Chapter 14, Transfer and Problem Solving

- Chen (1999). Schema induction in children's analogical problem solving. *Journal of Educational Psychology, 91*, 703-715.
- Gardener, H., & Boix-Mansilla, V. (1994). Teaching for understanding within and across disciplines. *Educational Leadership 51*(5), 14-18.
- Rosenshine, B., & Meister, C. (1992). The use of scaffolds for teaching higher level cognitive strategies. *Educational Leadership, 51*(5), 62-67.

November 17, 2005

Chapter 15, Applications of Cognitivism II: Learning Through Interactions with Others

- Blumenfield, P. C., Marx, R. W., Soloway, E., & Krajcik, J. (1996). Learning with peers: From small group cooperation to collaborative communities. *Educational Researcher, 25*(8), 37-40.
- Palicsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*, 117-175.
- Shachar, H., & Sharan, S. (1994). Talking, relating, and achieving: Effects of cooperative learning and whole class instruction. *Cognition and Instruction, 12*, 313-353.
- Slavin, R. E., (1987). When does cooperative learning increase student achievement? *Psychological Bulletin, 94*, 429-445.

Chapter 16, Motivation and Affect

- Beene, J. (1991). Sorting out the self-esteem controversy. *Educational Leadership, 49*(1), 25-30.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic motivation on intrinsic motivation. *Psychological Bulletin, 125*, 627-668.
- Reeves, J., & Decei, E. L. (1996). Elements within the competitive situation that affects intrinsic motivation. *Personality and Social Psychology Bulletin, 22*, 24-33.
- Runco, M. A., & Chand, I. (1995). Cognition and creativity. *Educational psychology Review, 7*, 243-267.
- Weiner, B. (1990). History of motivational research in education. *Journal of Educational Psychology, 82*, 616-622.

November 24, 2005

UNIVERSITY CLOSED, THANKSGIVING RECESS

December 1, 2005

Chapter 17, Cognitive Factors in Motivation

Anderman, E. M., & Maehr, M. L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research, 64*, 287-309.

Clifford, M. (1990). Students need challenge not easy success. *Educational Leadership, 48*(1), 22-26.

Strong, R. Silver, H. F., & Robinson, A. (1995). What do students want (and what really motivates them)? *Educational Leadership, 53*(1), 8-12.

Wentzel, K. R., & Wigfield, A. (1998). Academic and social motivational influences on students' academic performance. *Educational Psychology Review, 10*, 155-175.

December 8, 2005

Chapter 18, Attributions

Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31*, 674-685.

Jovonen, J. (2000). The social functions of attributional face-saving tactics among early adolescents. *Educational Psychology Review, 12*, 15-32.

Weiner, B. (2000). Intrapersonal and interpersonal theories of motivation from an attributional perspective. *Educational Psychology Review, 12*, 1-14.

ONE (1) ABSTRACT DUE

December 15, 2005

FINAL EXAM