Cognition, Learning, and Instruction in the Classroom
Psychology 320
TuTh 10:30 – 11:50, WYL 113

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Office Hours by appointment

ABOUT THE COURSE

We look at learning in formal and informal educational settings (primarily K-12) through the lenses of cognitive and developmental psychology. The course is divided into units pertaining to the theoretical perspectives on learning and instruction, neuroscience and education, cognition, and learning environments. We start with a focus on prominent theories and principles along with recent work integrating neuroscience and educational psychology. Then, we cover various applications of cognition in the classroom (conceptual change, problem solving, strategy development, and the design of instruction) and the role of technology. At the end, we will consider how education is changing and revisit the role of a learning sciences approach.

By the end of the course, you will be able to

- articulate the interdisciplinary contributions and connections of education, neuroscience, and psychology.
- critically evaluate and analyze how different theories of learning and research findings influence educational practices.
- understand how different aspects of thinking (e.g., memory, problem solving) and social context (e.g., schools) affect learning.
- appreciate the bidirectional contributions of research and educational practice to one another.
- acknowledge different perspectives on some of the "big questions" in the learning sciences.

CLASS REQUIREMENTS AND EVALUATION

- Participation (20%). You are expected to come to class prepared to talk about the readings, share your insights and raise questions, support your fellow students’ communication, and work collaboratively to deepen the class’s exploration and understanding of the course material. You will be graded primarily on the quality, not the quantity, of your contributions to class activities and discussions, but note that it is difficult to make quality contributions if you rarely or never contribute. Participation can take on many forms, including whole group discussion, small group discussion, written in-class individual or group activities. Being unprepared or inattentive when others are speaking will lower your participation score.
I will offer you feedback on your contributions after the first two weeks of the term. After that, you will earn a +1, 0, or –0 for each class period over the remaining 23 course sessions. Conscientious and thoughtful participation (in its various forms) merits +1 on that day. Your total number of in-class points will be converted to a percentage grade, as shown in the table below.

<table>
<thead>
<tr>
<th>Earned Number of Points</th>
<th>Grade Range for this Part of Course</th>
<th>Additional Details: ‘–0’ is used for behaviors that detract from the classroom learning environment. It does not subtract from your total number of points, but it does influence your percentage earned within the corresponding grade range. For example, it is possible to earn 22 in-class participation points and have a 94% or a 100% for this portion of your course grade, based on –0s. Allowances and alternate arrangements will be made for excused absences, such as religious observances.</th>
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<tbody>
<tr>
<td>21 – 23</td>
<td>90 – 100%</td>
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<tr>
<td>18 – 20</td>
<td>80 – 89%</td>
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<td>15 – 17</td>
<td>70 – 79%</td>
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<td>13 – 14</td>
<td>60 – 69%</td>
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<td>&lt; 13</td>
<td>&lt; 60%</td>
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• **Reading Reflections (14%).** Students are responsible for posting 2 thoughtful, well-developed comments or questions for each class period to the forum on moodle prior to the deadline (vote on deadline as a class). The reflections will each be scored as a 0 or 1 scale (up to 2 points each class period), and the three days with the lowest scores will be dropped. You are responsible for reading your peers’ posts prior to the class period in order to be fully prepared to engage with them on the topics.

  *Some examples of approaches you might take:*
  
  o Critique the authors’ main points (either in agreement or disagreement)
  o Connect material from the reading to other ideas within and outside of our course
  o Raise questions you have while doing the reading
  o Develop an idea to follow up on a topic from the reading
  o Reflect on your reaction to a topic
  o Work through your current understanding and what questions you have
  o Propose how an idea from the reading might be applied more broadly
  o Make a conjecture and justify it using details such as references to others’ arguments, logical analysis, data, theory, etc.
  o Engage with another student’s question through various means

• **Discussion Facilitation (5%).** Each student is responsible for facilitating one class period’s discussion. Near the beginning of the class period, the discussion facilitator will briefly review key themes of the readings (2 – 3 min). As part of helping lead the discussion, the facilitator is responsible for planning how to integrate the reading reflections posted for that class period. As discussion facilitator, you will develop 4 main questions/topics to guide the class’s discussion. You will develop these discussion points based off of the reading reflections posted for that class period and your own perusal of the readings. You are welcome to undertake creative approaches to reviewing the key themes and facilitating discussion. When you are the facilitator, **please email your notes and plans before the class meeting** (vote on deadline as a class). Grades will be based on the content you cover as well as your ability to critically evaluate the readings, coordinate ideas, and generate good discussion.
• **Short Essay Sets (3 @ 9% each = 27%).** Over the course of the term, students will respond to 3 assignments that ask them to integrate the materials from the readings and class discussion, in responses to one or more analytical prompts. Students will have a choice of which prompts they complete (prompts and the associated due dates will reflect recent topics from class). Each essay or set of essays will total approximately 1200 words. Further details specifying the potential combinations of prompts will be given in class. While the question(s) will primarily focus on the most recent material, parts may ask you to consider material from earlier in the class.

**Due Dates of Essay Sets – SELECT THREE**

*At least one of the sets you choose must be in February and at least one must be in April/May.*

- Friday, February 13, 5 pm [focuses on material through 2/10, handed out 2/5]
- Friday, February 27, 5 pm [focuses on material through 2/19, handed out 2/19]
- Friday, March 27, 5 pm [focuses on material through 3/5, handed out 3/3]
- Friday, April 10, 5 pm [focuses on material through 4/2, handed out 4/2]
- Friday, May 1, 5 pm [focuses on material through 4/28, handed out 4/23]

• **Presentation (14%).** Students are responsible for giving a 10 minute presentation related to the topic they have selected for their term paper. The presentation needs to include a brief overview and research from one or more empirical articles on the topic. This will be followed by a class discussion (timing will vary) in which the presenter helps facilitate the discussion relating the newly learned information to other topics. The presentations will occur primarily throughout the second half of the semester, at a time when the topic is most related to the current class topic.

• **Term Paper (20%).** Each student will be expected to write a 10 – 15 page (double-spaced) term paper on a topic of interest that extends the information we are covering in class. You can choose to write a) a literature review or b) a research proposal. The paper is structured with a proposal due earlier in the term and a final paper due at the end of exam period, Friday, May 15, at 5 pm.

• **Extra Credit Opportunity: Reading Reflections.** On a rare occasion, it will be possible to earn 0.25 points extra credit on the reading reflection for a given class period. This is reserved for exemplary comments or participation that goes above and beyond.

• **Extra Credit Opportunity: Peer Review of Term Paper.** You can earn extra credit (aside from improving your paper) if you provide a peer review of another student's term paper by TBA. Specific guidelines will be provided in class; it is possible to increase your term paper grade by up to 4 percentage points. Students have found the peer review process very helpful in past courses.
COURSE POLICIES

Attendance
Regular attendance is expected. Please notify me in advance if you know you will have to miss class. If you miss a class, you are responsible for obtaining notes from another student in class. You may use your laptop to take notes, but using it to chat online, update Facebook, read the news, do work for other classes, etc. is distracting and not appropriate during the short time that we are together in class. Similarly, talking with others (through texting or conversation) is distracting for you, me, and your classmates. I greatly appreciate your cooperation with this.

Religious Observances
If dates for course requirements are in conflict with your religious observances, please notify me at least 2 weeks ahead of time in order to make other arrangements.

Accommodations
Students with special needs should contact me during the first two weeks of the term to arrange for accommodations.

Ethical Conduct
By your enrollment in this course, you are agreeing to conduct yourself with the utmost integrity throughout the semester, following the principles laid out in the Honor Code (see http://www.wesleyan.edu/studentaffairs/honorboard/honorcode.html). Acts of academic misconduct diminish the educational experience for everyone involved – yourself, other students, and instructors. You are expected to do your own work except as indicated in the assignment and appropriately give credit to others.
Theoretical Perspectives on Learning and Instruction

Thurs 1/22/15  What is the science of learning?

Tues 1/27/15  Integrating Education and Psychology

Thurs 1/29/15  Theoretical Perspectives I

READ SECTION 1.3, PAGES 5 – 8 IN WORD DOCUMENT VERSION

Tues 2/3/15  Theoretical Perspectives II

READ TO PAGE 24

Thurs 2/5/15  Theoretical Perspectives III

OPTIONAL:
Tues 2/10/15  Learning Sciences: Dangers of Pseudoscience

Neuroscience & Education

Thurs 2/12/15  Applying Neuroscience to Education

Tues 2/17/15  Applying Neuroscience to Education: Brain Training

  OPTIONAL:

Thurs 2/19/15  Applying Neuroscience to Education: Games and a Design Perspective

Cognition

Tues 2/24/15  Novices and Experts
**Thurs 2/26/15  Conceptual Development**


SKIM SOME SECTIONS – TBA

**Tues 3/3/15  Conceptual Change**


**Thurs 3/5/15  Conceptual Change and Epistemology**


READ ONE OF THE FOLLOWING:


--- Spring Break ---

**Tues 3/24/15  A Broad View of Literacy**


**Thurs 3/26/15  Problem Solving, Transfer, and Information Processing**

TRY TO READ AHEAD OVER SPRING BREAK!


READ GENERAL TEXT PLUS TOPIC AREA OR MATH TOPIC FROM TBA ARTICLE

Tues 3/31/15  Information Processing Contributions
READ STARTING AND ENDING MATERIAL ALONG WITH YOUR ASSIGNED SECTION.

OPTIONAL:

Thurs 4/2/15  Problem Solving: Expanded Perspectives
TBA

Learning Environments

Tues 4/7/15  Piaget's and Vyogtsky’s Influences in Education I

OPTIONAL:

Thurs 4/9/15  Piaget's and Vyogtsky’s Influences in Education II
READ ONE OF THE FOLLOWING:
TBA articles by Barbara Rogoff

Tues 4/14/15  Informal Learning Environments

OPTIONAL:
Feder, M. A., Shouse, A. W., Lewenstein, B., & Bell, P. (Eds.). (2009). Learning Science in Informal Environments: People, Places, and Pursuits. National Academies Press. Ch. 3 Assessment (pp. 54–79); Ch. 7 Diversity & Equity (pp. 209–237)
Thurs 4/16/15  Classroom Learning Environments I
TBA

Tues 4/21/15  Classroom Learning Environments II

OPTIONAL:

Thurs 4/23/15  Classroom Learning Environments III

In summary ...

Tues 4/28/15  Technology in the Classroom
TBA

Thurs 4/30/15  TBA

Tues 5/5/15  Enhancing Student Learning

Disclaimer: The schedule of topics and readings is intended to be a general guide. All adjustments to the syllabus and readings will be announced in class and on moodle.