

## **Learning and Organizational Change 212**

### **Learning and Understanding**

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*Goals of the Course.* The purpose of this course is to explore how people learn and understand information. We will study learning at two levels of analysis: In individuals, and in organizations. The range of organizations includes schools, hospitals, and business institutions.

The course is relevant for all students in SESP (and beyond). It will help to prepare students to design and evaluate learning programs and learning environments. Thus the course is appropriate for students who might become teachers, consultants, human resource or training managers, etc. The class will expose students to a variety of methods, including instructional design, modeling, and evaluation of learning outcomes.

*Class Structure.* The course will use a variety of learning formats, including lectures, discussions, and group projects. Students need to do the reading before the assigned date and be prepared to discuss it in class. In addition, students will be assigned various projects that must be completed by the posted dates. Late work of any form will not be accepted unless there is a serious problem, such as extended illness or death in the immediate family.

An important focus of the term will be a final project that groups of students will work on across the term. The projects are designed to allow you to apply the background information that you gain in class and in the readings to a specific problem. Our plans are to group students to work on projects that meet their interests and career objects. Accordingly, we will not initially assign specific projects but will guide you toward coming up with a term project that is appropriate and interesting. Of course, we can assign projects if necessary, but we strongly prefer that you work with other students to come up with your own.

The final project must be reported both as a class presentation and a term paper that will be approximately 15 to 20 double-spaced pages in length. All members of the group will receive the same grade.

To make sure that adequate progress is made across the term, we have established benchmarks, which are described on the timetable. Each of the benchmarks will be evaluated, and in total, the benchmark reports will count toward 20% of the project grade.

*Grades.* Grades will be based on the following evaluations and criteria:

- a) *Two in class tests* (Oct. 18 and Nov. 22), each worth 12.5% of final grade.
- b) *Final Project:* 50% of final grade: Due Dec. 7 at 5 pm. Note that there are three benchmarks throughout the term that require you complete work toward the final project. The due dates are shown in the table below. Specific descriptions of the project will be presented in class.
- c) *NetLogo Model:* 10% of final grade. You will produce a simple model of a physical or social phenomenon. The model can be the basis for an educational intervention or learning environment.
- d) *Class Participation, Community Building, etc.* 15%. The class participation grades will be based on the following:
  - 1) Attendance.
  - 2) Preparation
  - 3) Participation
  - 4) Contribution to Discussion and Support of Other Students.

*Academic Integrity and Research Ethics.* Students may not give or receive any assistance on the in class exams. Doing so will result in immediate referral to the SESP Dean's Office. If there is a finding of academic dishonesty for any reason, the class grade (not just the grade on the test) will be an F. That is, any finding of academic dishonesty of any form on any assignment will result in a course grade of F.

Students may work with other members of their groups on the formulation of the project, the conduct of the work, the final presentation, and the final paper. All members of the group will receive the same final grades on final project and related benchmarks. All members of the group must contribute to and read all parts of the project, and all members are held responsible for all sections of the paper. Students may also work in their group on the NetLogo project. Again, all members of the team will receive the same grade.

Some students in the course may conduct research with human subjects as part of the final project. These students must follow the ethical guidelines for student research, available at <http://www.northwestern.edu/research/OPRS/irb/welcome/student.html>. Please note that under most circumstances, IRB approval is *not* required for student research. However, the professor and TA will make sure that the proposed research falls within ethical guidelines for educational research. In addition, please note that the policy on student research (see above web site) specifically excludes the publication or other dissemination beyond Northwestern of research conducted as student research. If you anticipate attempting to publish your project, present at a conference, etc, then you may want to consider obtaining IRB approval beforehand.

Summary of Assignments and Due Dates. The following table summarizes the graded assignments and due dates

<b>Assignment</b>	<b>Due Date</b>
Initial Proposal for Final Project	10/13/05
First Midterm	10/18/05
NetLogo Modeling Project Due	10/20/05
Rough Draft of Intro and Methods for Final Project	11/1/05
Group Benchmark	11/10/05
Second Midterm	11/22/05
Presentations	11/29/05
Presentations	12/1/05
Final Project Write-up Due	12/7/05 (4 pm)

**LOC 212, Fall, 2005.  
Timetable and Reading Assignments.**

Note: Readings by Byrnes are from the textbook. All other readings are posted on the CourseInfo Blackboard (courses.northwestern.edu) site, under the corresponding date.

- September 20            Introduction**  
  
(Byrnes, 1996), Chapter 1
- September 22            Learning, a Developmental Perspective**  
  
Byrnes, Chapter 2  
(Dunning, Heath, & Suls, 2004)
- September 27            Memory and Memory Development**  
  
Byrnes, Chapter 3  
(Braun, Ellis, & Loftus, 2002)
- September 29            Acquiring and Representing Information from Text and Language**  
  
Byrnes, Chapter 6  
(Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2002)
- October 4                Reading for Comprehension; Categories and Constructs**  
  
Byrnes, Chapter 7  
(Robinson-Riegler and Robinson-Riegler), pp. 191-206
- October 6                Mathematical Thinking; Introduction to Modeling with NetLogo**  
  
Byrnes, Chapter 9  
(Papert, 1991)  
Familiarize Yourself with NetLogo. The program can be downloaded at <http://ccl.northwestern.edu/netlogo>, and the manual is available at <http://ccl.northwestern.edu/netlogo/docs/>. In particular, pay attention to the “Learning NetLogo” tutorials.
- October 11                Organizational Learning and Change: A Modeling Approach**  
  
Guest Lecture by Spiro Maroulis, Ph.D. Candidate, Learning Sciences and co-author of the [Manufacturing Game](#).  
Reading to be announced

- October 13**                    **Mathematical Thought; Embodiment, and Manipulatives**
- (Martin & Schwartz, 2005)  
(Uttal, Scudder, & DeLoache, 1997)  
Guest Presentation by Meredith Amaya, Honors Student, Psychology
- Initial Proposal (1 to 2 pages, Single Spaced) Due
- October 18**                    **First Midterm (45 minutes)**  
Discussion and Review of NetLogo Projects
- October 20**                    **Spatial Reasoning and Visualization**
- NetLogo Project Due**
- (Robinson-Riegler & Robinson-Riegler, 2004) (pp. 372-379).  
(Shea, Lubinski, & Benbow, 2001)  
(Stieff, Bateman, & Uttal, 2005)
- October 25**                    **Guest Lecturer, Professor Danny Edelson**  
**Motivation and Learning**
- Byrnes, Chapter 5  
(Edelson & Joseph, 2005)
- October 27**                    **Concepts and Conceptual Change; Science Education**
- Byrnes, Chapter 10  
(Carey, 2000)
- November 1**                    **Mental Models**  
Rough Draft of Intro and Methods of Final Project Due—7 to 8 pages  
(Vosniadou & Brewer, 1992)
- November 3**                    **Expertise**
- (Chase & Simon, 1973)  
(Myles-Worsley, Johnston, & Simons, 1988)
- November 8**                    **Analogy and Knowledge Transfer**
- (Richland, Holyoak, & Stigler, 2004)  
(Loewenstein, Thompson, & Gentner, 1999)

- November 10**      **How Teachers Learn: Teacher Professional Development**  
Corporate Cultures and Learning
- Group Benchmark Due
- (Sherin & van Es, 2005)  
(Wenger & Snyder, 2000)
- November 15**      **Learning in Health Care Organizations**
- Guest Lecture, Dr. Tim Philipp, Director of Quality Assurance, Illinois  
Hospital Association
- Reading to be announced
- November 17:**      **Corporate Training and E-Learning**
- (Rossett, 2003)  
(Strother, 2002)
- November 22:**      **Second Midterm (45 minutes)**  
**Discussion of and Work on Presentations**
- November 24:**      **No Class, Thanksgiving**
- November 29:**      **Presentations**
- December 1:**      **Presentations**
- December 7 (4 pm):** **Final Paper (write up of project) due**

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