

# Learning in Informal Contexts

Course number: 15:256:591  
Day/Time: Wednesday, 4:50-7:30pm  
Location: GSE rm 211

Prof: Tim Zimmerman

Office Locations:  
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## Course Description

The seminar-style course focuses on theoretical components of learning in out-of-school contexts. Learning theory in this area draws heavily from socio-cultural perspectives on knowing and learning. As part of this course, we will read and discuss primary and secondary literature on learning sciences research focused on learning in out-of-school settings, including science centers, art museums, after-school programs, scouting and hobbyist groups, aquariums, and life-long learning settings, among other out-of-school contexts. This course is appropriate for graduate students in education.

Graduate students who are following a research trajectory will develop a rich understanding of research methodologies on informal learning and gain an appreciation for the rich sets of contexts and opportunities available for studying various aspects of “education” (cognition, instruction, teacher learning, professional development, etc) in non-traditional settings. For those graduate students with applied trajectories, this course will expose you to the research on the use of field trips, after-school programs, and other informal contexts as both teaching/learning tools and professional development tools. Graduate students in teacher credentialing programs will gain both theoretical and practical knowledge of leading field trips as a critical component of educational practice.

The course has two main projects: (1) a literature review paper pertaining to research and practice around learning in out-of-school contexts, and (2) either (a) creating a coherent school-based field trip experience (for teacher credential students) or (b) conducting a short study on informal learning using established informal learning research methodologies and protocols.

## Course Structure and Assignments

The course will follow a graduate-level, seminar-style format, meaning we will read and discuss important primary and secondary source literature on the topic, we will grapple with current issues faced by the field of informal learning, and students will engage in several semester-long activities designed to enhance their understanding of the scholarly and practical aspects of informal learning.

Summary of course activities (see below for complete details)

- researchers/practitioners (M.Ed., Ph.D., Ed.D.) - conduct short study on informal learning using established informal learning research methodologies and protocols
- teachers - following 3-phase model, will create a coherent school field trip experience
- all students - write a 10 page paper on a topic of their choice around informal learning
- all students - engage in approximately 3-5 hrs. of informal observations outside of class time (more for M.Ed., Ph.D., and Ed.D. students due to Project Requirements listed below)

Participation: Your participation in class counts heavily towards your grade. It is therefore ***important that you are present and actively participate in class*** activities and discussions. Learning is an active process: the more you participate the more you learn. As part of your participation you are expected to actively engage in class discussions, group work activities and online. In addition, class participation involves the discussion of assigned readings and class attendance as described further below.

- Readings/Responses: There will be assigned readings for each class session; you are expected to read them and be prepared to discuss them in class. You are expected to post responses to the reading on Sakai on a weekly basis. On occasion an additional reading may be assigned or a new reading may be substituted for an existing one.
- Attendance: You are expected to attend all class sessions. However, it is expected that, as adults, life sometimes throws curve balls that require you to be in attendance somewhere other than my class. You will be allowed one excused absence (meaning, you will not have to conduct “make up” work for that class) but it is expected that you will read all materials, post to Sakai as necessary, hand-in all work, and be responsible for all course content even if you are absent. Other absences can be negotiated on a case-by-case basis. If, at any time, you know you will be absent, please contact me prior to class if possible.

Literature review paper: All students will write a paper on a topic of their choosing but one that is related to informal learning. This will be a 10 page, literature review-style paper. You will be expected to find original, primary (with

some secondary) source literature on your topic of choice. The paper is to be written as if it were to be submitted to a peer-reviewed journal, thus you are expected to strictly adhere to the APA Styles Manual. Specific details about the paper will be handed out in class.

Informal Learning Observations: All students will conduct 3-5 hrs. of informal observations outside of class time (this will inherently be on the 5+ end of the spectrum for M.Ed., Ph.D., and Ed.D. students due to Project Requirements listed below). You will be provided with methodologies for conducting your observations and a list of venues, both locally on/near Rutgers' campus and others within close proximity to Rutgers. These observations are considered "homework," are conducted outside of official class time, and are required. Depending on course participants, we \*may\* take a class field trip to conduct observations at a science center, art museum, natural history museum, aquarium, or the like. You are to keep an Observations Journal, either on paper or electronically, that can be reviewed for a grade.

Projects:

- Teacher program students - Following a 3-phase model (Zimmerman, 2005; Zimmerman, in review), you will create a coherent school field trip experience on a topic of your choice and aimed at a grade (or grade range) of your choice. You will not need to conduct the field trip, but you may if so choose. You will submit your field trip lesson plan at the end of the semester along with a draft around mid-semester.
- Students in researcher or practitioner programs - You are to conduct a short study on informal learning using established informal learning research methodologies and protocols. This study will include a short research proposal (due prior to beginning your study) and a final write up (due at the end of the semester).

Individual reflection paper: The last assignment of this course is an individual reflection paper 3-5 pages long in which you (individually) reflect on what you have learned in this course. This reflection should be based on the contribution of the readings, class activities, and final project to your developing understanding of what it means to learn in informal contexts.

**Specific instructions for assignments (listed and not listed) will be provided in class closer to the assignment due date.**

**Care, respect and integrity in written and classroom exchanges.** All written work, including postings on Sakai, should be proofread for clarity, spelling, grammatical errors and the like. Please use language that is appropriate for the classroom setting and maintain a professional tone in both your Sakai postings and classroom discussions. Assignments should be your own work, except in cases where I have required a group product. Please do your own work and cite your sources. Outside sources should be referenced appropriately (either APA or

Chicago style is acceptable). You should not turn in the same work in two separate classes without the specific written approval of the faculty members involved. Violations of academic integrity have serious consequences for your grade, your academic future and your career. Please familiarize yourself with the university policy on academic integrity: <http://academicintegrity.rutgers.edu/integrity.shtml>.

**Grading:**

<u>Assignment</u>	<u>Tentative due date</u>	<u>Grade</u>
Participation (individual)	Throughout the course	15%
Reading reactions	Throughout the course	5%
Projects	Week 16	30%
Literature Review Paper	Week 15	25%
Observations	Throughout the course	20%
Individual reflection paper (individual)	May 9	5%

**Books/Readings:**

**Required -**

Books

Bell, P., Lewenstein, B., Shouse, A.W., & Feder, M.A. (Eds.). (2009). *Learning science in informal environments: People, places, and pursuits*. Washington, D.C.: National Academies Press. (Available at: [http://www.nap.edu/catalog.php?record\\_id=12190](http://www.nap.edu/catalog.php?record_id=12190))

PDFs

Available on the course Sakai site under Resources, Readings

**Recommended -**

Hein, G. (1998). *Learning in the museum*. New York, NY: Routledge.

Falk, J.H. and Dierking, L.D. (2000). *Learning from museums: Visitor experiences and the making of meaning*. Lanham, MD: AltaMira Press.

**Weekly Syllabus follows.**

## **Weekly Syllabus:**

### **Week 1 - January 18: Course Introduction**

topics - syllabus, course requirements, etc.; basic intro to informal learning, disputed definitions, places, people, ...

Assignment(s) to complete *prior* to this class

none

### **Week 2 - January 25: What is Informal Learning?**

topics - history, constructivism outside schools, factors (context, authority, agency, motivation, experiential, ...)

Assignment(s) to complete *prior* to this class

Readings:

Rennie, L.J. (2007). Learning science outside of school. In: S.K. Abell & N.G. Lederman (Eds.), *Handbook of research on science education* (pp. 125-167). Mahwah, NJ: Lawrence Erlbaum Assoc., Inc.

Bell, et al., (2009) - Chapters 1-2.

Supplemental Readings:

Falk and Dierking (2000). Learning from museums, Ch 1 - Introduction

Hein, G.E. (1998). Learning in the museum, CH 8 - The Constructivist Museum.

Activities:

Post a Reading Reflection

Conduct 1st Informal Learning Observation Assignment

Due *in class*:

\*\*\*\*\* 1st Informal Learning Observation - on Sakai or in class \*\*\*\*\*

### **Week 3 - February 1: Assessment, Evaluation &/or Research**

topics - diff btwn assess/eval/rsch, tools and evidence, agendas

Assignment(s) to complete *prior* to this class

Readings:

Deirking, L.D. (2008). Evidence and categories of ISE impacts. In A. Friedman (Ed.), *Framework for evaluating impacts of informal science education projects*. Retrieved from: [http://insci.org/resources/Eval\\_Framework.pdf](http://insci.org/resources/Eval_Framework.pdf).

Hein, G.E. (1998). Learning in the museum: CH 4 - The countenance of visitor studies. (pp. 54-77).

Yalowitz, S.S. (2004). Evaluating visitor conservation research at the Monterey Bay Aquarium. *Curator* 47(3), 283-298.

Activities:

Post a Reading Reflection

Due in class:

nothing

### **Week 4 - February 8: Methodology**

topics - ethnographic, case studies, observations-lucking, shadowing, recording, surveys, visitor studies

Assignment(s) to complete *prior* to this class

Readings:

Bell, et al., (2009) - Chapter 3 - Assessment

Falk, J.H. and Adelman, L.M. (2003). Investigating the impact of prior knowledge and interest on aquarium visitor learning. *Journal of Research in Science Teaching*, 40(2), 163-176.

Ellenbogen, K (2002). Museums in family life: An ethnographic case study. In G. Leinhardt, K. Crowley, and K. Knutson (Eds.), *Learning conversations in museums* (pp. 81-101). Mahaw, NJ: Lawrence Erlbaum Associates.

Supplementary Readings:

Falk, J.H. and Dierking, L.D. (2000). Learning from Museums: Visitor Experiences and the Making of Meaning. CH 9 - Documenting learning from museums.

Activities:

Post a Reading Reflection

Write one paragraph about your Project ideas

Due in class:

\*\*\*\*\* One paragraph about your ideas for your class Project. Where (type of informal learning context) will you focus this work? (Researchers - What issues about learning will you address? What might you be able to study? How might you study it at this site?) (Practitioners - What grade level will your project target? What content topic will be the focus? What resources might you need? \*\*\*\*\*

## **Week 5 - February 15: Theoretical Perspectives, Part 1 (sociocultural)**

topics - social mediation, cultural practices, situated learning

Assignment(s) to complete *prior* to this class

Readings:

Ash, D. & Wells, G. (2006). Dialogic inquiry in classroom and museum: Actions, tools, and talk.. In Z. Bekerman, N. Burbules, & D. Silberman-Keller (Eds), *Learning in places: The informal education reader* (pp. 35-54). New York, NY: Peter Lange.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Forward & Chapters 1-2 (pp. 13-58). Cambridge, UK: University Press.

Nasir, N.S., Rosebery, A.S., Warren, B., & Lee, C.D. (2006). Learning as a cultural process. In R.K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 489-504). Cambridge, UK: University Press.

Activities:

Conduct 2nd Informal Learning Observation Assignment  
Post a Reading Reflection

Due *in class*:

\*\*\*\*\* Informal Learning Observation #2 - on Sakai or in class \*\*\*\*\*

## **Week 6 - February 22: School-based Field Trips**

topics - lesson planning, effective leading of trips, pre-visit-post design approach

Assignment(s) to complete *prior* to this class

Readings:

Orion, N. & Hoffstein, A. (1994). Factors that influence learning during a scientific field trip in a natural environment. *Journal of Research in Science Teaching*, 33(10), 1097-1119.

Zimmerman, T.D. (in review).

Tal, T. & Morag, O. (2007). School visits to natural history museums: Teaching or enriching? *Journal of Research in Science Teaching*, 44(5), 747-769.

Supplementary Readings:

Storksdiel, M. (2006). *Field trips in environmental education*. Berlin, Germany: Berliner Wissenschafts-Verlag.

Activities:

Post a Reading Reflection  
Complete your Project Proposal or Draft

Due in class:

\*\*\*\*\* Project Proposals/drafts To Be Handed In Today \*\*\*\*\*

**Week 7 - Feb 29: Creating Learning Spaces Outside Schools**

topics - design considerations, object/learner/message oriented design,

Assignment(s) to complete *prior* to this class

Readings:

Allen, S. (2004). Designs for learning: Studying science museum exhibits that do more than entertain. *Science Education*, 88(1), 17-33.

Botelho, A. & Morias, A.M. (2006). Student-exhibits interactions at a science center. *Journal of Research in Science Teaching*, 40(10), 987-1018.

Hohenstein, J. & Tran, L.U. (2007). Use of questions in exhibit labels to generate explanatory conversation among science museum visitors. *International Journal of Science Education*, 29(12), 1557-1580.

Supplementary Reading:

Bell, et al., (2009). Ch 5 - Science Learning in Designed Settings.

Activities:

Conduct 3rd Informal Learning Observation Assignment  
Post a Reading Reflection



Due in class:

\*\*\*\*\* Informal Learning Observation #3 - on Sakai or in class \*\*\*\*\*

### **Week 8 - March 7: Theoretical Perspectives, Part 2 (experiential & object-oriented learning)**

topics - experiential learning theory, object learning theory

Assignment(s) to complete *prior* to this class

Readings:

Hein, G.E. (2004). John Dewey and museum education. *Curator*, 47(4), 413-427.

Rowe, S. (2002). The role of objects in active, distributed meaning-making. In S. Paris (Ed.), *Perspectives on object centered learning in museums* (pp.17-31). Mahaw, NJ: Lawrence Erlbaum Associates.

Paris, S. (2002). Children learning with objects in informal learning environments. In S. Paris (Ed.), *Perspectives on object centered learning in museums* (pp.17-31). Mahaw, NJ: Lawrence Erlbaum Associates.

Activities:

Post a Reading Reflection

Due in class:

nothing

### **Week 9 - March 14: \*\*\*\* SPRING BREAK, NO CLASS \*\*\*\***

Assignment(s) to complete *prior* to this class

Have fun; relax; read a book for pleasure; spend time with friends/family.

### **Week 10 - March 21: Family Learning**

topics - mediation by family, where to families learning, ...

Assignment(s) to complete *prior* to this class

Readings:

Ash, D. (2003). Dialogic inquiry in life science conversations of family groups in a museum. *Journal of Research in Science Teaching*, 40(2), 138-162.

Eberbach, K. & Crowley, K. (2005). From living to virtual: Learning from museum objects. *Curator*, , 317-338.

Crowley, K., & Jacobs, (2002). Building islands of expertise in everyday family activity. In G. Leinhardt, K. Crowley, and K. Knutson (Eds.), *Learning conversations in museums* (pp. 333-356). Mahaw, NJ: Lawrence Erlbaum Associates.

Activities:

Conduct 4th Informal Learning Observation Assignment  
Post a Reading Reflection

Due in class:

\*\*\*\*\* Informal Learning Observation #4 - on Sakai or in class \*\*\*\*\*

### **Week 11 - March 28: Theoretical Perspectives, Part 3 (multiple lenses)**

Assignment(s) to complete *prior* to this class

Readings:

Hein, G. (1998). Educational theory. In *Learning in the museum*, pp. 14-40. New York, NY: Routledge.

Falk, J.H. and Storksdieck, M. (2005). Using the “Contextual Model of Learning” to understand visitor learning from a science center exhibition. *Science Education*, 89, 744-778.

Rennie, L.J, & Johnston, D.J. (2004). The nature of learning and it’s implication for research on learning from museums. *Science Education*, , S5-S16.

Activities:

Post a Reading Reflection

Due in class:

nothing

### **Week 12 - April 4: School-Museum Partnerships**

topics - research on how to establish good working relationships,

Assignment(s) to complete *prior* to this class

Readings:

Phillips, M., Finkelstein, D. & Wever-Frerichs, S. (2007). School site to museum floor: How informal science institutions work with schools. *International Journal of Science Education*, 29(12), 1489-1507.

Kisiel, J. (2010). Exploring a school-aquarium collaboration: An intersection of communities of practice. *Science Education*, .

Activities:

Post a Reading Reflection

Due *in class*:

nothing

**Week 13 - April 11: Life-long Learning**

topics - retirees as volunteers, ISE learning throughout the life span

Assignment(s) to complete *prior* to this class

Readings:

Falk, J., & Dierking, L. (2002). *Lessons without limits* (Chapters 6-11), pp. 63-132. AltaMira Press, Walnut Creek, CA.

Siegel, D.R., Esterly, J., Callanan, M.A., Wright, R., Navarro, R. (2007). Conversations about Science across Activities in Mexican-descent Families. *International Journal of Science Education*, 29(12), 1447-1466.

Activities:

Post a Reading Reflection

Due *in class*:

nothing

**Week 14 - April 25: Interest, Attitudes, and Identity**

topics - how do interest, attitudes and identities of learners affect student ISE learning

Assignment(s) to complete *prior* to this class

Readings:

Packer, J. & Ballentyne, R. (2002). Motivation factors and the visitor experience: A comparison of three sites. *Curator*, 45(3), 183-198.

Jarvis & Pell, (2005). Factors influencing elementary school children's attitudes toward science before, during, and after a visit to the UK National Space Centre. *Journal of Research in Science Teaching*, 42(1), 53-83.

Nasir, N.S. (2002). Identity, goals and learning: Mathematics in cultural practice. *Mathamatical Thinking and Learning*, 4(2&3),213–247.

Activities:

Post a Reading Reflection

Due *in class*:

nothing

## **Week 15 - May 2: Citizen Science as Informal Learning**

Assignment(s) to complete *prior* to this class

Readings:

CAISE. (2009). *Public participation in scientific research: Defining the field and assessing its potential for informal science education*. Washington, D.C.: Center for Advancement of Informal Science Education.

Activities:

Post a Reading Reflection  
Finish your Literature Review paper

Due *in class*:

\*\*\*\*\* Literature Paper Due in Class \*\*\*\*\*

## **Week 16 - May 9: Project Presentations**

Assignment(s) to complete *prior* to this class

Readings:

none

Activities:

Finish your final Project paper  
Write your Individual Reflection paper

Due *in class*:

\*\*\*\*\* Project Papers due in class \*\*\*\*\*

**NOTE** - Individual reflection papers due on May 9