LEAD and SERVE constitute the conceptual framework for all programs for professional educators at North Carolina State University. They are the touchstones that assure that our students graduate with the following:

- **LEAD**: four forms of knowledge; general pedagogy, content-specific pedagogical strategies, content or discipline knowledge as well as knowledge of the context of education, including foundations, historical perspectives and school settings.

- **SERVE**: elements that show the range of skills and dispositions developed in our candidates; scholarly, ethical, reflective, valuing diversity and experienced in practical application of knowledge.

**COURSE INFORMATION**

**Course Prefix and Title**

**Instructor Information**
Jimmy Scherrer, Ph.D.
Office Hours:
317B Poe Hall     Wednesdays 3:30-5:30
jscherr@ncsu.edu  or by appointment

**Course Description**
Beyond a general introduction to the field of learning sciences, this course mainly focuses on how environments—including the people, technologies, and interactions within them—enable or constrain opportunities to learn and identify. We will use current theories and concepts that are of interest to the learning sciences to help us decide how environments should be designed so that the actors who interact in them can do what it is that we want them to do. For example:

- How should classrooms be designed—and teachers teach—if we want students to think and reason in a certain way?
- How should an organization design its work environment to foster creativity and innovation?
- How should we design incentive systems that motivate workers, students, and teams?
- How can technology be used to create an environment that enables opportunities for identity formation and identity expression?

We will spend the first half of each class session discussing research on a specific perspective, theory, or concept. During the second half, a group of participants will present a learning environment that they have designed using the research we have been discussing. The rest of the participants will debate how the environment enables or constraints learners’ ability to be
a legitimate peripheral participant in a given practice. The environments that we will discuss include, but are not limited to, (1) traditional brick-and-mortar school environments; (2) “informal learning” environments, such as museums; (3) online environments; (4) traditional workplace environments, such as school districts; and (5) innovative workplace environments, such as Google.

The purpose of the class discussions is not to come to consensus on how to design various learning environments. And I am certainly not going to give any “answers” at the end of each class (I do not have any to give). Rather, by participating in these discussions and supporting your contributions with the research we read, I believe you will realize the following goals.

**Goals of the Course**

As an introductory course in the learning sciences, I have some broad goals:

- Become familiar with some of the journals learning scientists read.
- Become familiar with some of the central “actors” in the learning sciences.
- Articulate some differences between learning scientists and researchers with similar interests, such as instructional designers and educational psychologists.
- Begin to understand the general beliefs and fundamental commitments that are shared among learning scientists.
- Become familiar with the history of the learning sciences and the literature base that current work builds upon.
- Become aware of learning sciences communities, such as ISLS and NAPLeS.

In sum, I hope as a result of this course you know how, if desired, to move from legitimate peripheral participation to more full participation in the learning sciences. Another goal of this course is that you will come to understand what that last sentence means.

I also have some specific goals related to your research:

- Discriminate different learning perspectives and be able to articulate affordances and limitations of each for your specific research questions.
- Achieve coherence and consistency (regardless of the learning perspective) between your research questions, your methods, and your conclusions.
- Examine how traditional notions of intelligence, expertise, and so on, that are a part of your research (or the research that you read) change when learning and cognition are considered to be inherently situated.
- Identify the presuppositions in your (and others) research questions, and state different presuppositions and research questions that are consistent with the situative perspective.

**Required Course Text**

Topics
The topics we will be discussing are not discrete—common theories and concepts will be present in all “topics.” Labeling the weeks in this manner simply helps frame our discussions.

Week 1. Introduction to the Learning Sciences: Past, Present, and Future
Week 2. Perspectives on Learning: Behaviorist and Cognitivist
Week 3. Perspectives on Learning: Situated
Week 4. Perspectives on Learning: Cognitive Apprenticeship
Week 5. Perspectives on Learning: Learning in Activity
Week 6. Distributed Cognition
Week 7. Cognition in Practice
Week 8. Expertise: Individual and Group
Week 9. Creativity and Innovation
Week 10. Identity (1)
Week 11. Identity (2)
Week 12. Gaming, Identity, and Learning
Week 13. Introduction to Design Research
Week 14. Introduction to Design-Based Implementation Research
Week 15. Summary: Cognition and Learning from Three Perspectives

Meeting Time and Location
Wednesdays 12:25-3:15, Poe Hall 417

Number of Credits
3

Grading (see separate document for assignment descriptions)
Participation in class discussions 75%
Presentation on a specific learning environment design 10%
Research brief 15%

COURSE READINGS
At the end of each “topic” a list of “additional readings” is given. This list is meant to help the group that will be presenting on that topic. The list is not exhaustive, and at the end of each topic I will briefly explain why each of the “additional readings” was selected.

Week 1: Introduction to the Learning Sciences
Reading for class (week 1)


Pages 13-24 in:
**Weeks 2, 3, 4, and 5: Perspectives on Learning**

*Readings for Behaviorist and Cognitivist (week 2)*


*Readings for Situated (week 3)*

**Chapters 1 & 2 (pp. 29-58) in:**


*Reading for Cognitive Apprenticeship (week 4)*

**Chapter 3 (pp. 61-87) in:**

**pp. 3-18 in:**


*Reading for Learning in Activity (week 5)*


For more on perspectives of learning and knowledge building, see the following:


**Week 6: Distributed Cognition**

*Reading for class:*


For more on Distributed Cognition, see the following:


**Week 7: Cognition in Practice**

*Reading for class:*


*For more on Cognition in Practice, see the following:*


Week 8: Expertise: Individual and Group

Reading for class:

pp. 31-50 (Chapter 2) in:

Choose one of the following:


Read last:

For more on expertise, see the following:


**Week 9: Creativity and Innovation**

*Reading for class:*


**pp. 7-10 and pp. 211-223 in:**


*For more on creativity and innovation, see the following:*


Young, J. A technique for producing ideas. (these are notes presented to his graduate students at the University of Chicago. They can easily be found online)

**Weeks 10 and 11: Identity**

Reading for Class (week 10)

- **pp. 62-71 in:**

- **pp. 312-315 in:**

- **Chapters 4 and 5 (pp. 91-123) in:**

Reading for Class (week 11)

- **pp. 1-6 in:**

- **pp. 143-165 (Chapter 5) in:**


*For more on Identity, see the following:*


**Week 12: Gaming, Identity, and Learning**

*Reading for Class:*


*For more on Gaming, Identity, and Learning, see the following:*


**Week 13: Introduction to Design Research**  
**Readings for Class:**  


**Week 14: Introduction to Design-Based Implementation Research**

**Readings for Class:**


For more on Design Research, see the following:


Learning Sciences: Theories, Concepts, and Environments
Fall 2015

Week 15: Summary: Cognition and Learning from Three Perspectives
Reading for Class:


For more on Perspectives of Cognition and Learning, see the following:


UNIVERSITY INFORMATION

Communication Policy
It is easiest to communicate with me through email: jscherr@ncsu.edu. Note, as per university policy, I must send all messages to your NCSU email account. Further, as per university policy, all students are required to check their NCSU email account on a regular basis for course communication and updates.

Everyday I set aside a block of time to read (and respond to) email. On most days, I get through most emails. However, there are some days when I cannot attend to all messages. If you do not hear back from me in 48 hours, do not hesitate to send me the message again.

Course Evaluations
Online course evaluations will be available to complete during the last two weeks of class. You will receive an email message with a link to a website where you can login using your Unity ID and complete evaluations. All evaluations are confidential; instructors will never know how any one student responded to any one question, and students will never know the ratings for any particular instructor.

Academic Integrity
Students are required to uphold the university pledge of honor and exercise honesty in completing course work. Details of the academic integrity policy can be found in the Code of Student Conduct: [http://policies.ncsu.edu/policy/pol-11-35-01](http://policies.ncsu.edu/policy/pol-11-35-01)
Accommodations
Accommodations will be made for students who need them. Students are encouraged to register with Disability Services for Students to gain access to a range of resources: http://dso.dasa.ncsu.edu

Supporting Fellow Students in Distress
As members of the North Carolina State University community, we each share a personal responsibility to express concern for one another and to ensure that this classroom and the campus as a whole remains a safe environment for learning. Occasionally, you may come across a fellow classmate whose personal behavior concerns or worries you. When this is the case, I encourage you to report this behavior to the NC State Students of Concern website: http://studentsofconcern.ncsu.edu/. Although you can report anonymously, it is preferred that you share your contact information so they can follow-up with you personally.

COMPLETE LIST OF REFERENCES


*Learning Sciences: Theories, Concepts, and Environments*


Young, J. *A technique for producing ideas.* (these are notes presented to his graduate students at the University of Chicago. They can easily be found online)