
HUMAN EXPERTISE

Course Description & Syllabus

Course Number: 85-392/792

Vital Info

Home Page: <http://www.cmu.edu/blackboard/>

Class Schedule: Tue & Thur 9:00am – 10:20am in BH 340A

Instructor: Marsha C. Lovett
124 Cyert Hall (x8-3499)
Email: Lovett@cmu.edu
Office hours: By appointment

In this course, you will learn about:

Objectives

- up-to-date results on expertise and skilled performance
- the methods and theories of this research area
- what it takes to become an expert — first hand!

After successfully completing this course, you will be able to

- relate important findings to theories of expertise and skill acquisition
 - see the patterns (and oddities) in how people develop expertise
 - read primary articles from the expertise literature and discuss them
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Have you ever wondered how human chess experts keep beating (well, almost always keep beating) the computer program DeepBlue? Have you ever considered what makes the performances of Yo-yo Ma, Tiger Woods, and Kevin Spacey so great? Have you ever wanted to be an expert at X (you fill in the blank) without really trying? Have you actually tried to become an expert or highly skilled performer in a particular domain and needed help deciding on the best approach?

Overview

In this course, we will address these and many other questions. In particular, we will be reading from the primary literature on expertise (i.e., psychology journal articles) and from other relevant sources (e.g., review chapters, news stories, biographies). We will cover a variety of domains, from chess to sports to visual arts. Also as part of this course, you will each learn first-hand what it takes to acquire expertise by practicing a skill of your choice and documenting your progress throughout the semester. Finally, you will research and write about the development of expertise in a particular domain.

The course home page (listed in Vital Info) serves as a repository for all course materials. It contains information about the course, an up-to-date schedule, links to the readings, handouts, this syllabus, and other documents. Current assignments (and their due dates) and class announcements are kept up to date and archived. It is worth checking in regularly to explore the offerings.

Home Page

The format of the course is, on the whole, group discussion. Each week will begin with an update (from a subset of students in the class) on how things are developing with their chosen skill. Then, we will launch into a discussion of the current reading(s). This discussion will be led by a member of the class and should include ample participation from the class as a whole. In addition, from time to time, I will present some background material to supplement the readings.

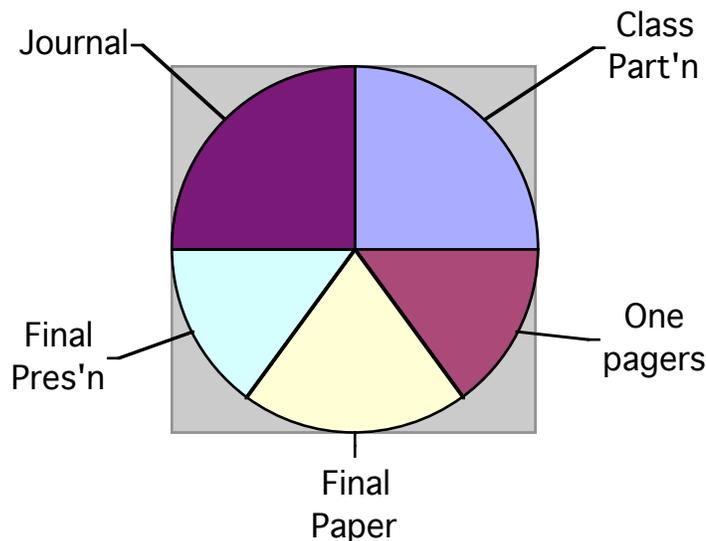
Format

There are three major components of this course, outlined below.

Components

- 1) Preparing for and participating in class
 - a) Working to understand the reading(s) for each class
 - b) Bringing your "one-pager" about the reading to class **G 15%**
 - c) Participating in class discussion (incl. leading one class) **G 25%**
- 2) Learning and documenting your development of expertise
 - a) Practicing your chosen skill
 - b) Documenting your progress in a journal **G 25%**
 - c) Giving an oral presentation on your developing expertise **G 15%**
- 3) Writing a final paper on a particular domain of expertise **G 20%**

Each of these components will be discussed in detail next. Note that items annotated with a "G" will be submitted for a grade and factor into your final course grade as indicated (see percentages & pie chart).



Preparing for and participating in class

Each class session, we will discuss required reading(s). Read each of these carefully and thoughtfully in order to participate fully in the class discussion. See (and use!) the attached "Tips on Reading Primary-Source Literature" so that you can derive the most out of each reading. To get some initial discussion going and to share questions and ideas in class, each class member will bring a *one-pager* to class. The one-pager should contain your summary of the 2-3 key points of the article, any critical questions/comments you had, and at least one reflection on how the paper relates to your experiences with expertise. In general, the one-pager should serve to focus your attention on the key issues while you are reading and to encourage reflection on key ideas and questions you see in the reading. Again, class participation is critical for this course, so another way to think about the one-pager is that it gives you documentation (i.e., a reminder) of some of the ideas you had while reading that you can contribute to class discussion.

One other aspect of class participation involves *leading a discussion*. Each member of the class will select one class meeting and will lead the discussion of the reading(s) assigned for that class meeting. You will not have to teach this class, as everyone should be well prepared (i.e., already worked to understand the reading assignment, thought about the issues, written their one-pagers, etc.). However, you will be responsible for generating a more comprehensive set of discussion questions for class and trying to integrate comments people make during class. See the attached "Tips on Leading a Good Discussion" and note that these tips also serve as general advice for class participants even when you are not the discussion leader.

As a whole, your activities toward preparing for and participating in class will comprise 40% of your final course grade. Note that all of the activities mentioned above *presume attendance*; attendance is required!

Learning and documenting your development of expertise

As part of the course requirements, you will work to acquire a skill this semester. You should select an activity at which you are not already proficient. You will commit to *practicing that activity 4-6 hours per week*, so you should select something you really want to learn! You must make your selection by the second class meeting (January 19th) and turn in a short statement describing your skill and describing your goal for the semester (see Assignment #1A). As a means of measuring your progress, you will need to establish a set of performance metrics (i.e., how will you measure your development of skill?). You will define these assessments in Assignment #1B, and then, at various intervals during the semester, you will test yourself

and record your measurements. In addition, you will keep a *journal of your developing expertise* not only to record these performance measurements but also to keep close track of when you practice, how you practice, and for how long. You should also include in your journal any other comments on your experiences as you develop your skill. The format of your journal is largely up to you. However, whatever choices you make (continually adding to a single MSWord document, making separate entries in a leather-bound folio, annotating video recordings...), consider the following constraints:

- At regular intervals, you will be required to submit your journal. (I will elaborate on the ideal contents of your journal during class.)
- At the end of the semester, you will be giving an oral presentation to the class (more details later). To create this presentation you will need to rely on the detailed information in your journal.
- Losing your journal would be a disaster, so plan (and execute) a strategy to avoid this (backing up documents, making copies, etc.).

Your activities toward learning and documenting your development of expertise (i.e., journal and oral presentation) will comprise 40% of your final course grade. This is an important way the course supports “learning by doing,” but it should not be considered completely separate from the research articles we will be studying. Throughout the semester, we will seek relationships between your experiences at developing expertise and the characterizations of expertise we read in the literature.

Final paper

As a culmination of your work during the semester, you will submit a 10-15 page paper on the development of expertise in a particular domain. Ideally, this domain will coincide with the skill you have been practicing all semester. The content of the paper will be a combination of literature review and proposal. The review part should include a review of the literature on the development of skill in your chosen area and a discussion of how this particular area of expertise does (or does not) fit with the models of expertise we have discussed. The proposal part will consist of an experiment proposal for studying an aspect of expertise in that area or a new training regimen proposal. (We will discuss the details of an ideal proposals during class.) Assuming the domain you choose for your final paper is the same as (or similar to) the skill you are practicing throughout the semester, this is where your experiences may help you generate and address questions about the development of expertise in that area.

Although this written product will be submitted at the end of the semester, you will make progress on it throughout the semester by reaching various milestones, e.g., finding sources, submitting an outline of the review part, submitting a sketch of your proposal.

All together, your activities toward preparing and final draft of this paper will comprise 20% of your final grade.

The schedule below should give you a general framework for how the work for this course will be distributed throughout the semester. A continually updated version of this schedule will be available on the website. When in doubt, resort to the website version of the schedule. In addition, the website version will have details on the readings assigned for each class meeting and helpful documents to accompany those readings.

Date	Topic Being Discussed	Written Assignment Due
1/17/06	Preliminaries	
1/19/06	Introduction to Expertise	Assignment #1A: Practice Plan
1/24/06	Intellectual Skills	Assignment #1B: #1A cont'd
1/26/06		
1/31/06		Assignment #2: Journal I
2/2/06		
2/7/06		
2/9/06		Perceptual/Motor Skills
2/14/06		
2/16/06		
2/21/06	Assignment #4: Journal II	
2/23/06		
2/28/06		
3/2/06	Assignment #5: Review Outline	
3/7/06		
3/9/06	Assignment #6: Journal III	
3/21/06	Theories & Methods	
3/23/06		
3/28/06		Assignment #7: Proposal Sketch
3/30/06	Savant Syndrome	
4/4/06	Professional Skills	
4/6/06		Assignment #8: Journal IV
4/11/06		
4/13/06		
4/18/06		
4/25/06		Paper Rough Draft
4/27/06	Class Presentations	
5/2/06	Class Presentations	
5/4/06	Class Presentations?	Assignment #9: Journal V
E.O.S.	—	Final Paper

Read your student handbook on policies for cheating and definitions of plagiarism. Cheating and plagiarism are defined in the CMU Student Handbook, and include (1) submitting work that is not your own for papers, assignments, or exams; (2) copying ideas, words, or graphics from a published or unpublished source without appropriate citation; (3) submitting or using falsified data; and (4) submitting the same work for credit in two courses without prior consent of both instructors. Any student who is found cheating or plagiarizing on any work for this course will receive no credit for that work. Further action will also be taken if necessary.

It is expected that all work will be submitted on time. Indeed, all of the assignments represent cumulative work, so the most effective way to do well on assignment n is to refine your work based on feedback for assignment $n-1$. Based on this idea, work not submitted on time is still very important to complete and submit for feedback – even if late. However, there is a late penalty that increases linearly with lateness: each day after the due date, an additional 10% is subtracted from the score. So, if you submit a perfect assignment a day late, you earn $100\% - 10\% = 90\%$; two days late, you earn $100\% - 20\% = 80\%$ and so forth.

The easiest and most reliable way to get in touch with me is by e-mail. Feel free to send me e-mail if you have a question related to the course. I will respond as soon as I can but not always instantaneously. You can also call my office at the number listed above.

Contacting Me

Besides that, you are also welcome to stop by my office any time to discuss the class. Please understand that I may not be free to talk to you at that time, but, in that event, we can make an appointment for a later time that is mutually convenient.