

## **Human Expertise and Technical Communication (TC598)**

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<http://faculty.washington.edu/jturns/expertise>

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### **COURSE DESCRIPTION:**

This course will focus on what is known about human expertise and how such knowledge can impact activities common in design fields such as technical communication. The importance of understanding users and audience is widely recognized in the design communities.

Additionally, designers often face the challenge of designing systems to support experts, non-experts, and people developing expertise. Gaining a broad background in human expertise will provide design professionals with additional ideas and tools for understanding the audience and supporting development of expertise.

### **OBJECTIVES:**

As a result of participation in this course, students will be able to:

- Identify characterizing features of expertise, seminal research on expertise, methodologies use to study expertise, and the development of expertise.
- Develop strategies for characterizing the expertise of the audience.
- Develop designs for technical communication products (e.g., help systems, online documentation, information systems, etc.) that reflect the level of expertise in the audience, as well as the development of expertise.
- Formulate strategies for interacting with experts (e.g., developers) in order to accomplish technical communication activities (e.g., create documentation).

### **TOPICS and SCHEDULE:**

#### **Week 1:** Visions of Expertise and Expertise Research

- Exploring ideas about what it means to be an expert and
- Exploring methods for studying expertise

#### **Week 2:** Visions of Memory Expertise

- Comparing and contrasting the memory of waiters with the memory of actors
- Seeing how the expertise research unfolds over time

#### **Week 3:** Tracing a Historical Thread through the Expertise Research

- A collection of expertise studies that cover 20 years and build on each other
- Varied domains include social science, experimental design, and historical analysis

#### **Week 4:** Probing Deeply into Writing/Composition Expertise

- A selection of readings on expertise in writing and composition
- Students complement pre-selected papers with papers of their choosing

#### **Week 5:** The Breadth of Expertise Research

- Readings from two seminal books on expertise
- Different students read different readings, as a class we read much of each book

#### **Week 6:** Looking back and Looking beyond

- Summarizing the cognitive expertise research
- Exploring broader visions of expertise (e.g., as a social commodity)

- Week 7:** Knowledge elicitation and expert systems 1
  - Metaphors and methods for knowledge elicitation methods
- Week 8:** Knowledge elicitation and expert systems 2
  - A survey of expert systems
- Week 9:** Designing for Experts and Novices 1
  - Strategies and examples of designing for experts and/or novices
- Week 10:** Designing for Experts and Novices 2
  - Designing to support the development of expertise!

**STUDENT REQUIREMENTS**

Students will be expected to (a) lead discussions on the readings, (b) complete weekly exercises selected to bring student perspectives to the class, to stimulate discussion, and to provide opportunities to apply concepts, (c) complete a midterm exam, and (d) define and complete a term long project related to the issues of expertise and technical communication. The grade will be determined as follows:

- Project 1:** Exploring the Nature of Expertise with Verbal Protocols ..... 40%  
 Through this project (completed during the first six weeks of the term), students will empirically investigate the nature of expertise in one domain. The project will entail experimental design, data collection and analysis, and paper writing. Four class exercises associated with the project will account for half of this project grade, and the project write-up will account for the remaining half of the project grade.
- Project 2:** Characterizing SME Expertise with Knowledge Elicitation Techniques..... 15%  
 In this project, due in Week 8, students will practice using knowledge elicitation techniques from the expert system community in order to characterize the expertise of a subject matter expert.
- Project 3:** Designing for experts and novices ..... 15%  
 In this project, due in Week 10, students will redesign an artifact in order to explicitly support the needs of expert and novice users and justify the design decisions based with the expertise research results. Students will likely generate two candidate versions of the design, one for experts and one for novices.
- Final Exam:** ..... 20%  
 The exam will provide opportunities for students to demonstrate their learning from the course materials and relative to the course learning goals.
- Class Contributions:** ..... 10%  
 Class contribution consists of participating in class discussions, completing small class exercises, and championing specific readings.