Science and technology drive modern economies and organizations around the world. This seminar is designed to introduce graduate students to the extensive literature on the economics and sociology of science and technology. We will draw upon a mix of "classic" and cutting-edge articles (and book excerpts), which offer both theoretical and empirical treatments of relevant issues. Specific topics to be covered include: the norms and incentives underlying engagement in science; the organization of scientific fields and communities; scientific collaboration and networks; the commercialization of university research; scientific employment patterns; intellectual property; geography and knowledge spillovers; and measurement issues.

Requirements:

1. *Class participation.* Much of value in this seminar derives from our collective discussions, as we explore and debate the concepts and data presented in the various readings. As such, advance preparation of the readings and active participation in our discussions are essential. There is no set “grade percentage” for class participation. Instead, my assessment of your participation will serve to modify your final course grade (up or down).

2. *Discussion leadership (15% of course grade).* Twice during the term, each student will assume responsibility for leading the discussion. The overall point of discussion leadership is to organize and frame the discussion in a way that draws out critical points from each reading and that highlights the connections (and/or inconsistencies) among them. You may employ creative formats, too, such as a “field trip” to an on-campus location that relates to the readings or a debate between two “sides” of an issue. I encourage you to communicate with me in advance of your discussion leadership sessions to brainstorm ideas and to develop a discussion plan.

3. *Referee report (25% of course grade).* As we’ll discuss, peer-reviewed papers are an important means of communication in science and an important form of “currency” in scientists’ careers. Good reviews not only analyze and assess a paper, providing a publication recommendation, but also offer specific suggestions on how an author might strengthen his/her research. Each student will select one of the articles on the course reading list on which to perform a “peer review.” I will provide further details on this assignment in class. It will be due no later than March 5.
4. **Research paper (60% of course grade).** The bulk of your grade will depend upon a research paper “front end” that you will write. We don't have enough time for you to perform a complete empirical analysis and to write a complete paper. Through the course of the seminar, however, you should develop a reasonable understanding of the key issues in the economics and sociology of science and technology. Your task is to identify a research question (e.g., a gap in the current literature or an assumption that you wish to problematize) and then to write the “front end” of an empirical paper. Thus, you will perform a literature review around the specific topic, you will discuss the ideal data to address this question, and you will describe the method you would use to analyze these data. You will not, however, be responsible for actually gathering and analyzing data, nor will I expect you to draw conclusions and implications (e.g., as would appear in the “discussion” section of the paper) based on such analyses. I will provide further details on this assignment in class. A preliminary version will be due on March 9, and the final version will be due on March 21 (the scheduled final exam date for this course).

**Course Details:**

1. I do not have set office hours. Please email me if you’d like to meet and I’d be happy to set up an appointment.
2. I will make available electronically the various articles and the book excerpts to which we have UO access. You will be responsible for purchasing the books listed below, each of which is available used through Amazon. (We read larger excerpts from these books, as noted below, and they are not available electronically through the UO libraries):

**Site Visits:**

One important goal of this seminar is to introduce you to the various contexts in which scientists and engineers do their work and to give you an appreciation of the “real world.” With this goal in mind, we’ll visit three different sites over the course of the term. Each site visit will last between one and two hours and will include a tour and informal Q&A with a site/lab participant:

- Academic chemistry laboratory (Week of Jan 13)
- Nanotechnology instrumentation facility (Week of Jan 20)
- Biological resource center (Week of Feb 3)
Summary of Topics:

Session 1: January 8 – Norms and Incentives in Science I: Sociological Foundations
Session 2: January 15 – Norms and Incentives in Science II: Economic Foundations
Session 3: January 22 – Scientific Communities
Session 4: January 29 – Communication and Collaborative Networks
Session 5: February 5 – Intellectual Property and Patents
Session 6: February 12 – Commercialization of University Research
Session 7: February 19 – Measurement Issues
Session 8: February 26 – Geography
Session 9: March 5 – Scientific Careers and Employment
Session 10: March 12 – Presentation and Discussion of Student Research Papers

Final paper due March 21

Detailed Description of Sessions:

Session 1: January 8 – Norms and Incentives in Science I: Sociological Foundations

Session 2: January 15 – Norms and Incentives in Science II: Economic Foundations
***Read Chs. 1-3 (pp. 1-89)

Session 3: January 22 – Scientific Communities

***Read Chs. 1-3 and 6 (pp. 1-86 and 163-200)

Session 4: January 29 – Communication and Collaborative Networks

Session 5: February 5 – Intellectual Property and Patents

Session 6: February 12 – Commercialization of University Research
• Owen-Smith, J. 2003. From separate systems to a hybrid order: Accumulative advantage across public and private science at research one universities. Research Policy 32(6), 1081-1104.

**Session 7: February 19 – Measurement Issues**

**Session 8: February 26 – Geography**

**Session 9: March 5 – Scientific Careers and Employment**

Session 10: March 12 – Presentation and Discussion of Student Research Papers
• By March 9, you should circulate a preliminary draft of your paper for review by your classmates.