Example Syllabus
Politics, Markets, and Innovation
FIS 308

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Office: Interdisciplinary B, Room 366
Office Hours: TR 2:00-3:00 or by appointment

Course description: In this course, students study how interactions among governments, firms and citizens shape the promotion, adoption, and regulation of science-based technological innovations. This will include surveying social behavioral theories that seek to explain the diffusion of innovations through society, the economic factors that structure markets, and the political dynamics that can alter expectations and investments. Course material will be illustrated by case studies in agriculture, healthcare, nanotechnology and digital rights. Students will develop a socio-technical scenario that applies course material to an emerging innovation of their choice in order to anticipate how political and economic processes and mechanisms could shape the outcomes of that innovation in the future.

Course objectives and learning outcomes: Students will apply research, critical thinking, and communication skills including:

- **Identify** the role of political economy in shaping innovation, including process by which technologies change society and by which society changes technology, and major historical periods as demarcated by technologies.
- **Compare** economic theories of innovation, the role of different actors, and local and global forces that shape innovation.
- **Anticipate** futures using foresight methods to assess emerging trends in the politics of innovation, scrutinize competing visions of the future, and anticipate the political and social interactions that can make different innovation futures possible.
- **Assess** possible governance mechanisms including public policy, marketing strategies, and citizen engagement in innovation.
- **Evaluate** the political economy of an emerging technology in terms of access, equity, and adoption.

Course Requirements: Students will come to class prepared to answer questions posed by the lecture and to discuss the assigned readings, often in small group settings. They will also be required to complete short assignments including identifying relevant news stories that pertain to the subject of the class. Students will produce a final project in which they will apply conceptual material from the class to a case study of their choosing that illustrates and anticipates the role of governments, firms, and citizens in structuring a national, regional or international market for a future or emerging innovation. Finally, students will take two exams consisting of multiple choice, true/false, and short written responses. A breakdown follows:

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<tr>
<th>Component</th>
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<td>Short assignments</td>
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<td>First Exam</td>
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<td>Second Exam</td>
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<td>Group Project</td>
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<td>Group Presentation</td>
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Short Assignments. Students will be required to complete two forms of short assignments: in-class assignments, which will consist of group research and discussion or individual research, and homework assignments, which consist of writing up the results of the research and discussions that were started in class. For instance, before or after a class lecture, students may be asked to break into small groups in order to discuss how the assigned reading relates to a central question or topic that pertains to the intersection of politics, markets and innovation. Or, they may be asked to identify relevant news stories and apply concepts learned in class in order to analyze the content of the news story. Or, using techniques learned in class, they may be given examples of emerging technologies and asked to anticipate different political and/or economic developments that could occur as those technologies become socially embedded.

Exams. Students will take two in-class exams, consisting of a mixture of approximately 100 multiple choice, true/false, and short answer questions each. The exams are designed to test student retention and comprehension of the reading and lecture material. They are also designed to engage students in critical thinking skills including the ability to identify and distinguish concepts and to logically relate concepts to one another.

Group Project. Throughout the semester, students will work in groups of 2-3 to plan, research and write up a final project. The final project will consist of a combination of the historical market and political conditions for an innovation case study of their choosing; contemporary scientific and technological developments that could alter that innovation; and three future scenarios in which innovation, politics and markets interact to produce distinctly different, yet plausible outcomes. Students will apply conceptual material from the class to illustrate how governments, firms, and citizens can each play a role in bringing about each of the three scenarios and to identify key governance mechanisms—including research funding, technology assessment, regulation and public participation—that could in theory influence how scenarios develop and how policy outcomes materialize.

Barrett students interested in adding an honors contract to the class should contact the instructor in the first week of classes.

Grading Scale:

- A- / A / A+ 90.0-92.4 / 92.5-97.9 / 98-100 Excellent
- B- / B / B+ 80.0-82.4 / 82.5-87.4 / 87.5-89.9 Good
- C / C+ 70.0-77.4 / 77.5-79.9 Average
- D 60.0-69.9 Passing
- E <60 Failure
- XE Failure due to Academic Dishonesty

[Note: in order to receive University Distribution requirement credit you must earn at least a “C.”]
Course Calendar by week:

Week 1 - Introduction: The Political Economy of Innovation

This introductory module will lay out key concepts, issues and questions about the relationships among governments, markets, and innovations including: the nature, value, and politics of innovation; factors that structure markets and shape diffusion; and the processes and mechanisms that govern innovations in society, from investments in basic science to policies that seek to promote and regulate their use.


Week 2 - Economic Theories of Innovation

This module will focus on understanding and comparing core ideas in the major economic theories of innovation. It will assess how technological innovation is explained by classical economics (division of labor, production, value, capital, investment, the invisible hand, the role of government), Marxist theory (production, labor, alienation), and quasi-evolutionary economics (technological paradigms, technological trajectories); it will also review the historical conditions that enabled the social science of economics to become a major cognitive influence in how modern societies are organized and governed.

Karl Marx, Das Capital. DC Books, 2008. (selections)

Week 3 - The Role of Government

This module will cover key topics in the interactive role of governments in promoting and regulating science-based technological innovations including budgets, policies, market interventions, intellectual property rights, technology assessment, and state goals associated with innovation including jobs, legitimacy, national security, and economic competitiveness.

Juan Lucena, “Japanese Technology Threatens America: Making Scientists and Engineers for Economic Competitiveness,” in Defending the Nation: U.S. Policy Making to Create Scientists and Engineers from Sputnik to the 'War Against Terrorism'. University Press of America: Lanham, MD, 2005.
Week 4 – The Role of Industry

Topics under this module will include the interactive role of firms in developing and marketing innovation, including corporate investments into research and development and the influence of the private sector on regulation and policy making.


Week 5 – The Role of Universities

This module will cover the interactive role of the university in responding to calls for research, innovation and training, including topics such as research policy, basic research, knowledge production, entrepreneurial science, technology transfer, and midstream modulation.


Week 6 – The Role of Citizens

This module will cover the interactive role of civil society—both as consumers who adopt innovations and as citizens who may be critical of them—in shaping the societal embedding of innovation. Topics include political controversies over science and technology (including historical examples such as the Luddites in 19th Century England), public understanding of science, participatory design, and the role of non-governmental organizations.

Marris, Claire. "Public views on GMOs: deconstructing the myths." *EMBO reports* 2.7 (2001): 545-548.  

Film: *The Yes Men Fix the World.*  

*EXAM 1 DUE*  

**Week 7 – Technology Assessment**  

This module will examine core social science concepts, methods and perspectives that have been applied by government and sponsored research organizations to assess new and emerging technologies in order to advise science and technology policy making, regulation and innovation programs, both in the US and internationally.  


**Week 8 – Case Study: Agriculture**  

This module will apply course concepts and material to the historically central case of agricultural innovation in the US and internationally, especially in connection with “green revolutions.”  


Film: Aaron Woolf, director, *King Corn*. 2007.  

**Week 9 – Case Study: Intellectual Property Rights in the Digital Age**  

This module will apply course concepts and material to the case of digital property rights in the US.  

Week 10 – **Case Study: Healthcare**

This module will apply course concepts and material to the case of healthcare innovation, including pharmaceuticals research, development and testing as well as the advent of personalized medicine.


Week 11 – **Case Study: Nanotechnology**

This module will apply course concepts and material to the case of nanotechnology policy, controversy, and the related rise of “responsible innovation” in the US and internationally.


Week 12 – **International Innovation**

This module looks at differences across national innovation systems as well as diffusion, transfer and trade across national borders.


* EXAM 2 DUE *

Week 13 – Group presentations

Week 14 – Group presentations

* GROUP PROJECTS DUE *

This syllabus is subject to change. It is your responsibility to read e-mail updates from the instructor as well as check the blackboard site for alterations made as events occur.

Incompletes: A mark of "I" (incomplete) can be given by the instructor when you are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. You are required to arrange with the instructor for the completion of the course requirements. The arrangement must be recorded using the form at http://students.asu.edu/forms/incomplete-grade-request. Students should be proactive and discuss this with their instructor and TA before the end of the semester. Students who do not complete this form before the end of the semester cannot be given an incomplete and will be awarded a grade based on the work they have completed.

Late Assignments: Late assignments will be accepted but will have 1 letter grade deducted each day they are late.

Grade Appeals: ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see: http://catalog.asu.edu/appeal

Student Standards: Students are required to read and act in accordance with university and Arizona Board of Regents policies, including: The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308; http://www.azregents.edu/policymanual/default.aspx

Professionalism in the Classroom: While learning happens throughout ASU, the classroom is a particularly important focal point. Students are asked to contribute to a collegial atmosphere where ideas can be exchanged, discussed, and debated freely by avoiding disruptions through their own behavior and the distractions of their technology. Disruptive, threatening or violent behavior will be dealt with according to the policies in the Student Services Manual, SSM 104–02. Students wishing to record lectures electronically must first get permission from the instructor.

It is impossible to learn from your fellow students when you or they are not there. As such attendance is required in this course. Should you have to miss a class, contact your instructor as far in advance as possible. Depending on the nature of the absence the instructor may elect to deduct points from your overall grade. Absences can be excused for religious observances or practices that are in accord with ACD 304–04 or university sanctioned events/activities that are in accord with ACD 304–02.

Academic Integrity: Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see http://provost.asu.edu/academicintegrity.
If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, school, and/or dean. Academic dishonesty includes borrowing ideas without proper citation, copying others' work (including information posted on the internet), and failing to turn in your own work for group projects. Please be aware that if you follow an argument closely, even if it is not directly quoted, you must provide a citation to the publication, including the author, date, and page number. If you directly quote a source, you must use quotation marks and provide the same sort of citation for each quoted sentence or phrase. You may discuss assignments with other students, however, all writing that you turn in must be done independently. If you have any doubt about whether the form of cooperation you contemplate is acceptable, ask the TA or the instructor in advance of turning in an assignment. Please be aware that the work of all students submitted electronically can be scanned using SafeAssignment, which compares them against everything posted on the internet, online article/paper databases, newspapers and magazines, and papers submitted by other students. Turning in an assignment (all or in part) that you completed for a previous class is considered self-plagiarism and falls under these guidelines. Any infractions of self-plagiarism are subject to the same penalties as copying someone else’s work without proper citations. Students who have taken this class previously and would like to use the work from previous assignments should contact the instructor for permission to do so.

Prohibition of Commercial Note Taking Services: In accordance with ACD 304-06 Commercial Note Taking Services, written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker’s name as well as the instructor's name, the course number, and the date.

Student Support and Disability Accommodations: In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. Qualified students with disabilities may be eligible to receive academic support services and accommodations. Eligibility is based on qualifying disability documentation and assessment of individual need. Students who believe they have a current and essential need for disability accommodations are responsible for requesting accommodations and providing qualifying documentation to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities. Qualified students who wish to request an accommodation for a disability should contact their campus DRC at: http://www.asu.edu/studentaffairs/ed/drc/. If you are a student in need of special arrangements we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services.

Sexual Violence and Harassment: Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at http://sexualviolenceprevention.asu.edu/faqs/students.

Drop and Add Dates/Withdrawals: Please refer to the academic calendar on the deadlines to drop/withdraw from this course. Consult with your advisor and notify your instructor if you are going to drop/withdraw this course. If you are considering a withdrawal, review the following policies: Withdrawal from Classes, Medical/Compassionate Withdrawal.
Email Communications
All email communication for this class will be done through your ASU email account and the blackboard site. You should be in the habit of checking your ASU email regularly as you will not only receive important information about your class(es), but other important university updates and information. You are solely responsible for reading and responding if necessary to any information communicated via email. For help with your email go to: http://help.asu.edu/sims/selfhelp/SelfHelpHome.seam?dept_pk=822 and file a help desk ticket by clicking on “My Help Center.”

Campus Resources:  As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.
  Tutoring: https://tutoring.asu.edu/tutoring
  Counseling Services: http://students.asu.edu/counseling
  Financial Aid: http://students.asu.edu/financialaid
  Major/Career Exploration: https://cls.asu.edu/majorexploration
  Career Services: http://students.asu.edu/career
  Student Organizations: http://www.asu.edu/studentaffairs/mu/clubs/