Syllabus
HSD 502: Advanced Science and Technology Policy

Spring 2016, Wed 3:00-5:40
EDB L1-26 (basement of Payne)
Instructor: Andrew Maynard (Andrew; andrew.maynard@asu.edu)

Course Description
HSD 502: Advanced Science and Technology Policy is the second semester of a two-course sequence (with its prerequisite HSD 501: Science and Technology Policy) that serves as the core requirement for ASU’s Master's degree in Science and Technology Policy. The course exemplifies the program’s unique approach by treating issues of policy analysis and communication on a par with historical and social scientific understanding of the scientific and technological enterprise. The course will be a rigorous, integrated and stimulating combination of reading, analysis, discussion, writing, and projects meant to provide students with a professional introduction to the making and communicating of science and technology policy. Readings will come from an array of sources, including scholarly texts, cutting edge and classic journal articles, government and other reports, blogs and web sites, journalism, creative writing (both fiction and non-fiction), and even film. The majority of the readings will be available through the web (especially through an ASU computer) or on the course BlackBoard site.

This semester, the course will provide a review of analytical tools learned in the first semester (below) and an advanced introduction to the (bold) analytical tool for understanding science and technology policy:

1. Usable Knowledge
2. Real-time Technology Assessment
3. Anticipatory Governance
4. Knowledge Systems Assessment
5. Public Value Mapping

Core Competencies
On completing this class, you will be able to:

- Describe innovation systems in the context of science and technology policy.
- Discuss the relationships between science, technology innovation, and equity/equality.
- Apply the ideas embedded within Public Value Mapping
- Discuss key connections between citizens and science and technology policy
- Write concisely and precisely in a manner that allows non-experts to rapidly assimilate and be able to act on information.
- Apply a suite of tools to analyzing, interpreting and making recommendations on science and technology policies.
Assignments

Students will be required to perform assignments in three key areas, structured around the analytical tools and communication skills required in the contemporary political environment, but also around the class readings:

1. **Concise, clear, relevant, and accurate, writing**: One-page briefs are a standard but idealized communication in political and policy environments. Ideally, they communicate from the analyst to the executive or decision maker everything the latter needs to know about a particular issue in the amount of text that fits legibly onto one side of a page. They require an excellent, analytic command of the issue and often but not always concludes with options or recommendations. Students will develop the skills required for writing issue briefs through a series of assignments that range from musings on readings, to synthesis or readings. Expectations of writing competency will be established in the first class, and in subsequent assignments. However, all written assignments should be written in clear, accurate and informative prose, which can be rapidly understood and assimilated by an intelligent non-expert. You should write as if your assignments will be made public for comment and critique (they won’t, but if you’d be embarrassed for your work to be publicized on Twitter, Facebook and elsewhere, rewrite it!)

2. **Point-of-view (POV) commentary (aka “op-ed”).** Commentary articles following this format often appear in newspapers, opposite the editorial page, and increasingly in the online version of magazines and journals, as well as on websites. Relying on vivid brief examples and clear concise language, POVs convey an argument or a perspective on a significant question of public policy in a manner that is novel, persuasive or both. Students will write one POV derived from the findings of their investigation into the implementation of their law. The writing style will be prepped in class on 06 April. The first draft is due 13 April in class for workshopping, and the final draft is due in class 19 April.

3. **Implementation paper.** This assignment is the counterpart to the legislative history of a public law from the first semester. In this paper, students will study and report on how their chosen public law was implemented or put into place, including, for example, issues in: the appropriation of funds; the writing of regulations, administrative rules, court rulings; the “street-level” or service-delivery aspects of the law; any reauthorizations of the law; etc. The class will spend time reviewing some of the implementation literature on 24 February. Bibliographies and outlines for the papers will be discussed 16 March. First drafts of the papers are due 5 April and final versions are due 4 May. Presentations will be made 20 April and 27 April. A high level of and written communication skill is expected in the implementation paper. It should be easily understood, informative, and persuasive, to a reader not familiar with the field. It should develop arguments clearly and compellingly, with full citations where necessary, within a narrative framework that makes sense. The reader should not have to work hard to try and understand what you are trying to convey. The paper should be something you are proud to share with colleagues and potential employers.

Because this is a graduate-level professional course, I expect that a significant amount of learning will occur among the students, as well as between the instructor and the students. For such learning to occur, it is vital that everyone attend all classes in a prepared fashion. I realize that being a student is only one part of your life, and if something personal, professional or
otherwise makes it impossible to attend or to prepare, please let me know as soon as possible. Unexcused absences and late assignments will be appropriately penalized in grading.

**Grading**

Grading for the assignments will be weighted according to the following scheme:

- Issue-based writing assignments: 20%
- Op-Ed: 15%
- Implementation Presentation: 10%
- Implementation Paper: 35%
- Class participation: 20%

**Grading scheme:**

I find it easiest to use a quantitative grading scheme where a solid “A” is represented by 95% - reflecting the unlikeliness of achieving perfection (100%) in a learning environment. If you get a score of 95%, this is very good – and not worth asking me why I’ve scored you low!

My break points for grades are:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
<th>Description</th>
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<tbody>
<tr>
<td>A-/ A/ A+</td>
<td>90.0-92.4/ 92.5-97.9/ 98-100</td>
<td>Excellent</td>
</tr>
<tr>
<td>B-/ B/ B+</td>
<td>80.0-82.4/ 82.5-87.4/ 87.5-89.9</td>
<td>Good</td>
</tr>
<tr>
<td>C/ C+</td>
<td>70.0-77.4/ 77.5-79.9</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>60.0-69.9</td>
<td>Passing</td>
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<tr>
<td>E</td>
<td>&lt;60</td>
<td>Failure</td>
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<tr>
<td>XE</td>
<td>Failure due to Academic Dishonesty</td>
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Schedule

13 Jan: Re-introductions, etc.
Topics: Review of previous semester
Preview of semester and assignments
In-class activity: Concise, precise, informative writing

20 Jan: No Class – Maynard out of town

27 Jan: Innovation Systems, I

Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
Write a 500 word musing, based on the readings, on aspects of innovation systems that stand out for you, intrigue you, challenge you, or frustrate you. Write in coherent prose that can be rapidly understood and assimilated by a reader not familiar with the field. An intelligent reader should be able to clearly summarize your thoughts after spending no more than 5 minutes reading your muse.

In-class discussion Each person to lead a short discussion around their muse, followed by a broader discussion on innovation systems.

3 Feb: Science and Technology/Equity and Equality


Pre-assignment: Due 12:00 midnight the day before class on Blackboard:

Write a 500 word musing on technology, equity and equality, based on the readings. Be precise in your thoughts and perspectives. Write in coherent prose that can be rapidly understood and assimilated by a reader not familiar with the field. An intelligent reader should be able to clearly summarize your thoughts after spending no more than 5 minutes reading your muse.

In-class discussion Each person to lead a short discussion around their muse, followed by a broader discussion on science, technology, equity and equality – including the relevance and role of science and technology policy.

10 Feb: Innovation Systems, II


Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
List (using bullets) five aspects or characteristics of innovation systems that you think will be critical to your future career path. Keep your bullet points within 30 words. Write in a manner that can be rapidly understood and assimilated by a reader not familiar with the field.

In-class discussion Each person to lead a short discussion around their bullet points, followed by a broader discussion on innovation systems.

17 Feb: **Nanotechnology through the lens of risk [Joint with Nano & the Law class – 3:30 PM – 5:25 PM]**

Readings:

Pre-assignment: No assignment this week – but be prepared to answer questions in class on the readings

In-class discussion Approaching an emerging technology such as nanotechnology through the lens of risk

24 Feb: **Implementation: What is It? [Andrew leading class from DC]**

Readings:
Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
Write a 200 word answer to the question “Implementation: What is it?” based on the readings.

In-class discussion Each person to lead a short discussion around answer to the question, followed by a broader discussion on implementation and science and technology policy.

2 March: Tool: Public Value Mapping

Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
Write a 500 word musing on “what is public value mapping?” based on the readings.

In-class discussion An exploration of the use of public value mapping in science and technology policy

16 Mar: Catch-up, Breather, and Implementation Paper Discussions
Pre-assignment: Please have prepared your bibliography and your outline of the implementation paper for discussion. Bring to class.

In-class discussion Implementation paper development, structure, and writing; any other questions/issues arising.

23 Mar: Citizen Science [Darlene Cavalier]
Scott Pelley, correspondent. 2012 (8 January). Stem Cell Fraud: A 60 Minutes Investigation. Available at: http://www.cbsnews.com/8301-
Guest: Darlene Cavalier, The Science Cheerleader and Founder, SciStarter
http://www.sciencecheerleader.com/
http://scistarter.com/

Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
Write a 500 word briefing on what citizen science is and why it is important from a science and technology perspective.

30 Mar: The Technological Fix
Readings:
www.bostonreview.net/books-ideas/whats-wrong-technological-fixes

Pre-assignment: Due 12:00 midnight the day before class on Blackboard:
Write a 500 word musing on public values and/or public value failures in your selected law/policy area, drawing where appropriate from the readings.

In-class discussion Each person to lead a short discussion around their musing. This will be followed by a broader discussion around technological fixes.

6 Apr: Writing Workshop I: Writing Op-Eds
This class will focus on instruction related to short persuasive writing about science and technology and innovation systems.

Guest: Gregg Zachary, Professor of Practice, SFIS, columnist on innovation for IEEE Spectrum magazine, author of one of the leading biographies of Vannevar Bush.

http://query.nytimes.com/gst/fullpage.html?res=9E02E2D913EF935A35756C0A9619C8B63&smid=tw-share


http://www.nature.com/news/crispr-science-can-t-solve-it-1.17806

Pre-assignment: Make sure you read all the readings, and come to class ready to discuss the key characteristics of these pieces, especially with respect to how they build and argue their point convincingly and compellingly

13 Apr: Writing Workshop II: Op-Eds
This class will focus on reading and editing the short persuasive writing.

Guest: Gregg Zachary

Pre-assignment: Bring to class a draft of a piece of short, persuasive writing around the topic of your implementation paper.

20 Apr: Project Presentations
Presentations: Members of the class will prepare and deliver a 20-minute presentation on his/her implementation paper. This time includes Q&A.

27 Apr: Project Presentations
Presentations: Members of the class will prepare and deliver a 20-minute presentation on his/her implementation paper. This time includes Q&A.
Academic Integrity – course specific

This course has by design a central focus on written, oral and even visual communication, and these forms of communication need to adhere to norms of academic discourse. These norms vary depending on the style of communication, e.g., in the implementation study you will follow more strict norms of attribution than you will for the op-ed. **In no case, however, will you ever represent someone else’s words or ideas as your own.**

General guidelines for academic work include:

- If the text you are writing has **3 or more important words consecutively** taken from a source, you must use quotation marks around that text AND cite that source and its page number. Some forms relax the requirement for page number (e.g., an op-ed), but they do not relax the requirement for attribution.

- If the text you are writing makes a specific and not commonly known point that is derived from a source, you must attribute that source. Paraphrasing, no matter what the source (even government documents), requires attribution.

- If the text you are referencing makes a point, even a specific one, that is commonly known (e.g., if you could find that same point in at least several different sources), you do not need to attribute that source. But you still must cite the source if you are using its own language rather than your own to make the point.

There are two important reasons for rules of attribution. One is to help your reader find anything he or she might want to pursue in greater detail. The other is to give credit where credit is due. Just because something is on the web or “in public domain” does not relieve the responsibility of providing appropriate attribution. Attribution is NOT about the legalities of copyright – it is about the integrity of scholarship.

ASU’s academic integrity policies: [http://provost.asu.edu/academicintegrity](http://provost.asu.edu/academicintegrity). Please note that there can be severe consequences to failure to adhere to standards of academic integrity.

With regard to style and grammar, your writing should, above all, be clear and correct. Aim for clarity first and elegance later. If you have questions about grammar and style, please consult the Writing Center ([https://tutoring.asu.edu/writing-centers](https://tutoring.asu.edu/writing-centers)), which has a number of resources that are very helpful. Indeed, you may also want to consult the Writing Center about the structure and execution of your research paper. You should be absolutely sure to proofread your final versions of assignments at least twice – do not rely on your word processor’s spell check, as there is more to good grammar and good style (and, indeed, good spelling) than spell check. But please use the spell check, with the grammar check turned on, because it will help you identify sentences that may need some work.

And please remember – if I struggle to understand what you are trying to convey, because of sloppy writing or poor editing/proof reading, I won’t be taking the time to second-guess what you were trying to convey, as this will end up eating into the time I spend on the next assignment I grade!

Academic Integrity – ASU

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.

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 have 1/3rd of a letter grade deducted each day they are late. Grade deductions may be waived with advanced written or e-mailed notice that you will miss a class or have to turn in an assignment late, if a reasonable justification is given.

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.

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
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.

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, please 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.

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.

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/