



ARIZONA STATE UNIVERSITY

GENERAL STUDIES COURSE PROPOSAL COVER FORM

Course information:

Copy and paste current course information from Class Search/Course Catalog.

College/School (Select One) Department The School for the Future of Innovation in Society
Prefix FIS Number 333 Title Governing Emerging Technologies Units: 3

Is this a cross-listed course? No If yes, please identify course(s)

Is this a shared course? No If so, list all academic units offering this course

Note- For courses that are crosslisted and/or shared, a letter of support from the chair/director of each department that offers the course is required for each designation requested.

Is this a permanent numbered course with topics? No

If yes, all topics under this permanent numbered course must be taught in a manner that meets the criteria for the approved designation(s). Chair/Director Initials (Required)

Course description: See attached

Requested designation:

Mandatory Review: (Choose one)

Social-Behavioral Sciences-SB

Note- a separate proposal is required for each designation.

Eligibility:

Permanent numbered courses must have completed the university's review and approval process. For the rules governing approval of omnibus courses, contact Phyllis.Lucie@asu.edu.

Submission deadlines dates are as follow:

For Fall 2016 Effective Date: October 1, 2015

For Spring 2017 Effective Date: March 10, 2016

Area(s) proposed course will serve:

A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas.

Checklists for general studies designations:

- Complete and attach the appropriate checklist
Literacy and Critical Inquiry core courses (L)
Mathematics core courses (MA)
Computer/statistics/quantitative applications core courses (CS)
Humanities, Arts and Design core courses (HU)
Social-Behavioral Sciences core courses (SB)
Natural Sciences core courses (SO/SG)
Cultural Diversity in the United States courses (C)
Global Awareness courses (G)
Historical Awareness courses (H)

A complete proposal should include:

- Signed course proposal cover form
Criteria checklist for General Studies designation(s) being requested
Course catalog description
Sample syllabus for the course
Copy of table of contents from the textbook and list of required readings/books

It is respectfully requested that proposals are submitted electronically with all files compiled into one PDF.

Contact information:

Name Jameson Wetmore E-mail Jameson.Wetmore@asu.edu Phone 480-727-0750

Department Chair/Director approval: (Required)

Chair/Director name (Typed): David Guston Date: 3/4/16

Chair/Director (Signature): [Signature]

Arizona State University Criteria Checklist for
SOCIAL-BEHAVIORAL SCIENCES [SB]

Rationale and Objectives

Social-behavioral sciences use distinctive scientific methods of inquiry and generate empirical knowledge about human behavior, within society and across cultural groups. Courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a complex and evolving world.

In both private and public sectors, people rely on social scientific findings to consider and assess the social consequences of both large-scale and group economic, technological, scientific, political, ecological and cultural change. Social scientists' observations about human interactions with the broader society and their unique perspectives on human events make an important contribution to civic dialogue.

Courses proposed for a General Studies designation in the Social-Behavioral Sciences area must demonstrate emphases on: (1) social scientific theories, perspectives and principles, (2) the use of social-behavioral methods to acquire knowledge about cultural or social events and processes, and (3) the impact of social scientific understanding on the world.

Revised April 2014

Proposer: Please complete the following section and attach appropriate documentation.

ASU--[SB] CRITERIA					
A SOCIAL-BEHAVIORAL SCIENCES [SB] course should meet all of the following criteria. If not, a rationale for exclusion should be provided.					
YES	NO		Identify Documentation Submitted		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. Course is designed to advance basic understanding and knowledge about human interaction.	Syllabus		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. Course content emphasizes the study of social behavior such as that found in: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> • ANTHROPOLOGY • ECONOMICS • CULTURAL GEOGRAPHY • HISTORY </td> <td style="width: 50%; vertical-align: top;"> Political Science Sociology </td> </tr> </table>	<ul style="list-style-type: none"> • ANTHROPOLOGY • ECONOMICS • CULTURAL GEOGRAPHY • HISTORY 	Political Science Sociology	Syllabus
<ul style="list-style-type: none"> • ANTHROPOLOGY • ECONOMICS • CULTURAL GEOGRAPHY • HISTORY 	Political Science Sociology				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Course emphasizes: <ul style="list-style-type: none"> a. the distinct knowledge base of the social and behavioral sciences (e.g., sociological anthropological). <li style="text-align: center;">OR b. the distinct methods of inquiry of the social and behavioral sciences (e.g., ethnography, historical analysis). 	Syllabus		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Course illustrates use of social and behavioral science perspectives and data.	Syllabus		
		THE FOLLOWING TYPES OF COURSES ARE EXCLUDED FROM THE [SB] AREA EVEN THOUGH THEY MIGHT GIVE SOME CONSIDERATION TO SOCIAL AND BEHAVIORAL SCIENCE CONCERNS:			
		<ul style="list-style-type: none"> • Courses with primarily arts, humanities, literary or philosophical content. • Courses with primarily natural or physical science content. • Courses with predominantly applied orientation for professional skills or training purposes. • Courses emphasizing primarily oral, quantitative, or written skills. 			

Course Prefix	Number	Title	General Studies Designation
FIS	333	Governing Emerging Technologies	SB

Explain in detail which student activities correspond to the **specific** designation criteria.
Please use the following organizer to explain how the criteria are being met.

Criteria (from checklist)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
1.	The course focuses broadly on how societies make decisions about how to govern emerging technologies that affect large numbers of people.	Course description, course objectives and learning outcomes, Week 2, Week 4, Week 4 assignment, Week 6 reading,
2.	This course explicitly draws on a number of disciplinary perspectives from social and behavioral sciences to understand how societies make decisions about technologies.	Course readings from: Anthropologists (Rabinow & Bennett, Weeks 5, 6, 8, 9, 10) Historians (Collingridge, Week 6) Political Scientists (Guston, Week 7, 10; Fisher, Week 12) Political Anthropology (Raynor, Week 6)
3b.	Students will grapple actively with social science research methods in developing their case studies and final presentations.	Research activities include conducting interviews and transcription (Week 10), patent searches (Week 8). Exposure to methods and findings from CTA, scenario planning
4.	Students will be challenged to read and critically evaluate empirical social science data and perspectives around governance of science and technology.	Weeks 8 and 9 engage directly with data obtained using social science research methods including database mining (Week 8) and public attitude surveys and methods (Week 9)

FIS 333 - Governing Emerging Technologies Course description: Examines the variety of ways in which societies make collective decisions or govern science and technology. Focuses on a particular category of science and technology: the set of emerging technologies like nanotechnology, artificial intelligence and robotics, genetic modification and synthetic biology, cognitive science and neurotechnology, geoengineering, and others that pose particular problems of high stakes, high uncertainty and ambiguous novelty. Closely allied with the research agenda of numerous faculty in the School for the Future of Innovation in Society, especially those in the Center for Nanotechnology in Society, the Risk Innovation Lab, and others; exposes students to inquiry and skills directly from the research front. Students perform numerous research tasks.

Governing Emerging Technologies

FIS 333

Prof. David H. Guston
david.guston@asu.edu 480-727-8829
Office: Interdisciplinary B, suite 366
Office Hours: MTWHF 0:00-0:00 or by appointment

Course description: This course examines the variety of ways in which individuals participate in and societies make collective decisions about – or govern – science and technology. It focuses on a particular category of science and technology: the set of “emerging technologies” like nanotechnology, artificial intelligence and robotics, genetic modification and synthetic biology, cognitive science and neurotechnology, geoengineering, and others that pose particular problems of high stakes, high uncertainty, and ambiguous novelty. The course is closely allied with the research agenda of numerous faculty in the School for the Future of Innovation in Society, and so students will be exposed to inquiry and skills directly from the research front in which these scholars are using various tools and methods from the social sciences to interrogate new and emerging technologies. The course will ask students to perform numerous research tasks using these tools and methods.

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Commented [DG2]: CRITERION 4

Commented [DG3]: CRITERION 3b

Course objectives and learning outcomes: This course will allow students to develop an in-depth understanding of various ways societies make collective decisions about new and emerging technologies. Students will learn to identify, describe and critique different mechanisms of governance, to explore the hopes and fears and other debates surrounding new and emerging technologies, and to synthesize the two to understand what challenges such technologies pose to traditional modes of governance. Students will learn to conduct original social science research – in small doses – and present the results of such research in different formats. Students will also develop research, writing and speaking skills through weekly assignments and two oral presentations.

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Course Requirements:

Attendance and Participation. Attending class and participating actively in classroom discussions and in-class activities is an essential element of immersive education. You will also find that so much of the rest of the course requirements are more easily accomplished if you attend and participate in class. A good aim in a class of any size is to arrive prepared to ask at least one question based on an informed understanding of the reading and to offer at least one comment or respond to one prompt from the instructor during the appropriate time in class. Another good aim is to take hand-written notes in class and later transcribe them, if you need to, into your computer. An open laptop in class is often more of a distraction than a learning tool.

Weekly Assignments. Students will perform short, weekly assignments related to the reading or to the topic(s) being discussed in class. Assignments will include research, writing, and reflection. They will be graded on a check, check plus, check minus, or zero basis, and any late assignment automatically receives a check minus (with the exception of excused absences per below). Cumulatively, these assignments (excepting #s 4 & 5, which are graded with the debate, below) are worth half the credit for the course and, perhaps more importantly, #s 6-11 inform the final presentation that all students will make, so it is essential that they be done in a timely and complete manner. “One page” means 250 to 400 words.

Debate. Students will prepare a written statement to present orally in class, for or against a given resolution. Depending on the size of the class, there may be more than one resolution, but each will focus on the alleged novelty of a given emerging technology and the impact its advocates and detractors claim it will have on the world. Students will also draft a reflection or debrief on their own debate performance, using the experience of hearing other students' statements and rebuttals to reflect on their own statements or rebuttals and also commenting on their own performance.

Final Presentation. In weekly assignments 6 through 11 students will analyze a technology proposed in Michael Crichton's *Next*. This process will include examining patents in the area, developing questions of concern to the general public, interviewing possible users, and developing a utopian vision of your technology. During the last two weeks students will make a final presentation to the class, summarizing their findings. The final presentation should be accompanied by a revised (revisited and improved) portfolio of the weekly assignments #s 6-11. The length of the presentation will depend on the number of students in the class. Students will be graded on a rubric that includes substantive, stylistic, and performative criteria, and students will be asked to provide peer assessments according to the rubric for other students.

Commented [JW6]: CRITERION 3B

Attendance & Participation	20%
Debate Performance	20%
Weekly assignments (cumulative)	35%
Final Presentation	20%
<u>Peer evaluations</u>	<u>5%</u>
Total	100%

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 Readings:

There are few, if any, textbooks where we are going. Much of the reading will consist of journal articles that are accessible to general audiences. Since many of these may be found electronically, there is also some cost savings to be realized in this approach. Students should be regularly reading such popular news outlets as the FutureTense channel on Slate.com, i09, the science, technology and/or health sections of major newspapers (e.g., *New York Times*), and remain abreast of relevant popular culture explorations of emerging technologies, including museum exhibitions, television and film, stories and novels, etc.

Required texts:

Crichton, Michael. 2006. *Next*. New York: Harper.
Rabinow, Paul and Bennett, Gaymon. 2012. *Designing Human Practices: An Experiment with Synthetic Biology*. Chicago: University of Chicago Press.

Commented [DG7]: CRITERIA 2, 4

Course Calendar:

Week 1: Introductions to Course and Concepts

Reading: Crichton, pp. 1-124

Week 2: What is Governance?

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Weekly Assignment 1: describe in one page of text how a familiar or mundane technology (e.g., car, gun, microwave oven, over-the-counter medicine) is governed.

Commented [DG9]: CRITERION 1

Reading: Crichton, pp. 125-257

Irwin A. 2008. STS perspectives on scientific governance. In: Hackett EJ, Amsterdamska O, Lynch M and Wajcman J (eds) *The Handbook of Science and Technology Studies*. Cambridge, MA: The MIT Press, pp. 583-60

Commented [DG10]: CRITERION 2

Week 3: What are Emerging Technologies?

Weekly Assignment 2: clip and discuss in one page of text a news article about an emerging technology. Make sure to identify why the technology is “emerging.”

Reading: Crichton, pp. 258-381

Week 4: Issues Posed By Emerging Technologies

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Weekly Assignment 3: Write a one-page reaction/response to one of the governing recommendations in the “Author’s Note” at the end of *Next*.

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Commented [DG13]: CRITERION 1

Reading: Crichton, pp. 382-537

Week 5: In-class debates: Proposition: Synthetic Biology is New

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Weekly Assignment 4: Prepare your debate statement and/or rebuttal

Reading: What ever you need to read to prepare your statement

Rabinow and Bennett, chapters 1 & 2

Week 6: Anticipatory Governance I: Problems of Control and Novelty

Weekly Assignment 5: Debate debrief. Write a page on how it went.

Reading: Collingridge, D. 1980. “The Dilemma of Control.” Pp. 13-22 in *The Social Control of Technology*. New York: St. Martin’s Press.

Commented [DG15]: CRITERION 1

Rayner, S. 2004. "The Novelty Trap: Why Does Institutional Learning About New Technologies Seem So Difficult?" *Industry and Higher Education*. December: 349-55.

Rabinow and Bennett, chapters 3 & 4

Week 7: Anticipatory Governance II: Foresight and Participation

Weekly assignment 6: Identify a specific technology from *Next* and summarize what it does, how it was made, etc.

Reading: Toffler, A. 1971. "Anticipatory Democracy." Pp. 470-87 in *Future Shock*. New York: Bantam Books.

Commented [DG16]: CRITERION 2

Guston, D.H. and Sarewitz, D. 2002. "Real-time Technology Assessment." *Technology in Society* 24:93-109.

Commented [DG17]: CRITERIA 2, 4

Week 8: Characterizing Research Around Emerging Technologies (possible guest Jose Lobo, Debbie Strumsky)

Weekly assignment 7: Using techniques discussed in class and homework, identify, list and get copies of 5 published articles and 5 patents closely related to your chosen technology.

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Reading: Youtie, J., Shapira, P. and Porter, A. 2008. "Refining Search Terms for Nanotechnology." *Journal of Nanoparticle Research* 10:715-28.

Commented [DG19]: CRITERION 4

Youtie, J., Iacopetta, M., and Graham, S. 2008. "Assessing the Nature of Nanotechnology: Can We Uncover an Emerging General Purpose Technology?" *Journal of Technology Transfer* 33:315-29.

Commented [DG20]: CRITERIA 2, 4

Rabinow and Bennett, chapters 5 & 6

Week 9: Characterizing Public Opinion and Values Around Emerging Technologies (possible guest Elizabeth Corley)

Weekly assignment 8: Draft five questions of the general public that might be informative about your chosen technology.

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Reading: Lee, C.J., Scheufele, D.A., and Lewenstein, B.V. 2005. "Public Attitudes Toward Emerging Technologies: Examining the Interactive Effects of Cognition and Affect on Public Attitudes Toward Nanotechnology." *Science Communication* 27(2):240-67.

Commented [DG22]: CRITERION 3b

Commented [DG23]: CRITERION 4

Brossard, D., Scheufele, D.A., Kim, E., and Lewenstein, B.V. 2009. "Religiosity as a Perceptual Filter: Examining Processes of Opinion Formation about Nanotechnology." *Public Understanding of Science* 18(5):546-58.

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Commented [DG25]: CRITERIA 2, 4

Rabinow and Bennett, chapters 7 & 8

Week 10: Engaging Publics Around Emerging Technologies (possible guest Ira Bennett, Rae Ostman)

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Weekly assignment 9: Interview two friends or family members, using your five questions. Take clear, concise notes and/or record and transcribe the interview. Submit your notes and/or transcriptions.

Commented [DG27]: CRITERION 4

Reading: Guston, D.H. 1999. "Evaluating the First US Consensus Conference: The Impact of the 'Citizens' Panel on Telecommunications and the Future of Democracy." *Science, Technology & Human Values* 24(4):451-82.

Commented [DG28]: CRITERIA 2, 4

Rogrs-Hayden, T. and Pidgeon, N. 2005. "Reflecting Upon the UK Citizens' Jury on Nanotechnologies: *NanoJury UK*." *Journal of Nanotechnology Law and Business* 3:167-78.

Commented [DG29]: CRITERIA 2, 4

Rabinow and Bennett, chapters 9 & 10

Week 11: Anticipating Aspects of Emerging Technologies (possible guest Cynthia Selin)

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Weekly assignment 10: Write one paragraph on a utopian vision of your technology, and a second paragraph on a dystopian vision. Write a third paragraph on describing what might happen to lead the technology in one or the other direction.

Commented [DG31]: CRITERION 4

Reading: Selin, C. 2008. "The Sociology of the Future: Tracing Stories of Technology and Time." *Sociology Compass* 2(6):1878-95.

Commented [DG32]: CRITERIA 2, 4

Rip, A. and te Kulve, H. 2008. "Constructive Technology Assessment and Socio-Technical Scenarios." Pp. 49-70 in E. Fisher, C. Selin, and J.M. Wetmore, ed., *The Yearbook of Nanotechnology in Society, Volume 1: Presenting Futures*. D.H. Guston, series editor. New York: Springer.

Commented [DG33]: CRITERIA 2, 4

Week 12: Integrating the Social and the Technical (possible guest Erik Fisher, Gaymon Bennett)

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Weekly assignment 11: Using all that you have learned (and more) about your technology, reflect on it by answering these four questions: What is the technology? What problem is it trying to solve? Who might be interested in it? Are there ways it might be done differently?

Commented [DG35]: CRITERION 4

Reading: Fisher, E. 2007. "Ethnographic Invention: Probing the Capacity of Laboratory Decisions." *NanoEthics* 1(2):155-65.

Commented [DG36]: CRITERIA 2, 4

Doubleday, R. 2007. "The Laboratory Revisited: Academic Science and the Responsible Governance of Nanotechnology." *NanoEthics* 1(2):167-76.

Commented [DG37]: CRITERIA 2, 4

Week 13: Student Presentations

Week 14: Student Presentations

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 weekly assignments will automatically receive a check minus; if they are not handed in by the first class of the following week, they will receive a zero. Advanced written or e-mailed notice that you will miss a class or have to turn in an assignment late could help your cause (and see below for attendance).

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/Self-HelpHome.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/>

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.

FIS 333 Governing Emerging Technologies Table of Contents and Required Readings

Crichton, Michael. 2006. *Next*. New York: Harper.

Rabinow, Paul and Bennett, Gaymon. 2012. *Designing Human Practices: An Experiment with Synthetic Biology*. Chicago: University of Chicago Press.

Table of Contents:

PART I. HUMAN PRACTICES: DIAGNOSIS

1 The Setting. SynBERC: The Synthetic Biology Engineering Research Center

2 Principles of Design, 2006–2007: From Bioethics to Human Practices

3 Interfacing the Human and Biosciences 2007: Three Modes

4 Synthetic Biology 2008: From Manifestos to Ramifying Research Programs

5 Lessons Learned 2009: From Discordancy to Indeterminacy

PART II. HUMAN PRACTICES: INQUIRY

6 Recapitulation and Reorientation 2009: The First Wave of Human Practices

7 The Second Wave of Synthetic Biology 2009: From Parts to Ontological Domains

8 A Mode 3 Experiment: Figuring Dual-Use—From Safety to Malice

9 Toward the Second Wave of Human Practices 2010: Figures of Dual-Use, Biopower, and Reconstruction

10 Lessons Learned 2010: From Indeterminacy to Discordancy

Irwin A. 2008. "STS perspectives on scientific governance." In: Hackett EJ, Amsterdamska O, Lynch M and Wajcman J (eds) *The Handbook of Science and Technology Studies*. Cambridge, MA: The MIT Press, pp. 583–60

Collingridge, D. 1980. "The Dilemma of Control." Pp. 13-22 in *The Social Control of Technology*. New York: St. Martin's Press.

Rayner, S. 2004. "The Novelty Trap: Why Does Institutional Learning About New Technologies Seem So Difficult?" *Industry and Higher Education*. December: 349-55.

Toffler, A. 1971. "Anticipatory Democracy." Pp. 470-87 in *Future Shock*. New York: Bantam Books.

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