



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 307 Title Navigating Futures 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.

<b>ASU--[SB] CRITERIA</b>					
<b>A SOCIAL-BEHAVIORAL SCIENCES [SB] course should meet all of the following criteria. If not, a rationale for exclusion should be provided.</b>					
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%; margin-top: 5px;"> <tr> <td style="width: 40%; vertical-align: top;"> <ul style="list-style-type: none"> <li>• ANTHROPOLOGY</li> <li>• ECONOMICS</li> <li>• CULTURAL GEOGRAPHY</li> <li>• HISTORY</li> </ul> </td> <td style="width: 60%; vertical-align: middle; text-align: center;">Anthropology</td> </tr> </table>	<ul style="list-style-type: none"> <li>• ANTHROPOLOGY</li> <li>• ECONOMICS</li> <li>• CULTURAL GEOGRAPHY</li> <li>• HISTORY</li> </ul>	Anthropology	Syllabus
<ul style="list-style-type: none"> <li>• ANTHROPOLOGY</li> <li>• ECONOMICS</li> <li>• CULTURAL GEOGRAPHY</li> <li>• HISTORY</li> </ul>	Anthropology				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. Course emphasizes: <ul style="list-style-type: none"> <li>a. the distinct knowledge base of the social and behavioral sciences (e.g., sociological anthropological).</li> <li style="text-align: center;"><b>OR</b></li> <li>b. the distinct methods of inquiry of the social and behavioral sciences (e.g., ethnography, historical analysis).</li> </ul>	Syllabus		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Course illustrates use of social and behavioral science perspectives and data.	Syllabus		
		<b>THE FOLLOWING TYPES OF COURSES ARE EXCLUDED FROM THE [SB] AREA EVEN THOUGH THEY MIGHT GIVE SOME CONSIDERATION TO SOCIAL AND BEHAVIORAL SCIENCE CONCERNS:</b>			
		• 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	307	Navigating Futures	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 is focused generating insights into and knowledge about the future impacts of technoscientific developments, an area of endeavor that is central to human interaction.	Course Description: This course is designed to introduce students to foresight methods and their potentials as entry-points into public discussions about near- and mid-range technoscientific developments.
2.	The course explicitly deploys historical analyses and comparative methods that are commonly used in anthropological research. For example, in week 2 students use historical comparative analysis to examine the conditions that have leaders from different institutions take up futurological analyses; in week 6, the course focuses on comparative analyses of the historical development of large technosocial systems; and in weeks 10 and 11, students will be debating the comparative merits of multiple schools of thought on foresight techniques by drawing, in part, on the historical development of those schools.	Regarding anthropological techniques, as noted in the course objectives, “students will necessarily need to read, think and debate across disciplines and cultural domains, and communicate, through written word and speech, in ways that will be effective and impactful across a range of professional areas.” Readings are drawn from varied cultural domains in a comparative manner; for example, week 8’s comparative examination of multiple schools of thought on scenario planning and week 9’s exercise’s emphasis on transmitting futurological narratives to multiple stakeholder groups with varied cultural contexts are fundamentally anthropological assignments. Additionally, the course regularly deploys historical analyses; for instance, students examine the history of foresight exercises in government agencies and business organizations in weeks 2 and 8.
3b.	The course makes considerable use of historical analyses in examining the development of foresight techniques.	Historical methods of inquiry are deployed throughout the course. For example, week 2 requires students to explore “historical socio-technical contexts that have encouraged institutions to invest significant resources in preparing for and attempting to partly mold likely and possible futures. Specific focus will fall on the importance of critical foresight exercises in knowledge economies.” In week 6, through the Hughes (1987) text, students will examine the historical development of several large technosocial systems. And in week 7, students explore the history of anticipatory governance strategies.

4.	Social science perspectives are important elements of technology foresight exercises, particularly as regards policymaking in the context of technological infrastructure and research and development trajectories.	The course regularly requires students to assess the political and societal impacts of technological developments and the formation of policy responses to these changes. These requirements necessarily include regular contemplation of the social science and behavioral science perspectives and data, as policymaking aims specifically at effecting aggregate human actions. An exemplary exercise occurs in week 5, when “students will learn how technology foresight exercises can be of value in the formulation of policymaking for the development and general governance of technological infrastructure, research and development programs and technology transfer strategies.” As well, in weeks 10, 11, 12, 13 and 14, students will be consistently discussing how diverse stakeholder groups might respond to the foresight projects students will create and present, and how effective those projects might be in generating policy recommendations. These exercises both use social science and behavioral science perspectives and data, and will possibly generate new data in each domain.
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**FIS 307 - Navigating Futures Course description:** Foresight methods and their potentials as entry-points into public discussions about near- and mid-range technoscientific developments. Four elements constitute the organizing axis of the course: (1) the history of foresight exercises in government agencies and business organizations; (2) the methods of four forms of foresight exercises (technology foresight, science and technology studies, anticipatory governance and scenario development); (3) a comparative assessment of these dominant forms; and (4) a group-based application exercise using one of the foresight methods.

# FIS 307—NAVIGATING FUTURES

Dr. Michael Bennett  
mgbenne1@asu.edu  
480.727.4520

Office: Interdisciplinary B, Room 366  
Office Hours: Tu/Th 1:00-2:00 or by appointment

## Course Description:

This course is designed to introduce students to foresight methods and their potentials as entry-points into public discussions about near- and mid-range technoscientific developments. Four elements will constitute the organizing axis of the course: (i) the history of foresight exercises in government agencies and business organizations; (ii) the methods of four forms of foresight exercises (technology foresight, science and technology studies, anticipatory governance, and scenario development); (iii) a comparative assessment of these dominant forms; and (iv) a group-based application exercise using one of the foresight methods.

## Course Objectives and Learning Outcomes:

Navigating Futures is designed to enable students to craft future-oriented inquiries, to think critically about and prepare for possible near- and mid-range futures and to help individuals from diverse backgrounds and organizations do the same. Upon completion of the course, students should be able to:

- (i) describe why foresight techniques were initially developed, how and why they changed over time;
- (ii) describe the fundamental differences between the two families of foresight techniques: prediction-oriented and contingency-centric approaches;
- (iii) comparatively assess the attributes of the dominant foresight methods;
- (iv) describe approaches to using two or more methods to facilitate public discussion and debate about the relative desirability of possible near- or mid-range futures;
- (v) apply foresight methods to a real-world development, project, or societal problem to assess emerging trends and plausible futures.

To achieve these goals students will necessarily need to read, think and debate across disciplines and cultural domains, and communicate, through written word and speech, in ways that will be effective and impactful across a range of professional areas.

## Course Requirements:

Class Participation	25%
Five Quizzes (bi-weekly)	25%
Comparative Analysis Report	25%
<u>Group-based Project</u>	<u>25%</u>
<b>Total</b>	<b>100%</b>

Barrett students interested in adding an **honors contract** to the class

should contact the instructor during the first week of classes.

Students are expected to attend each class meeting and to be prepared to contribute substantively to discussions covering that meeting's assigned readings. Although assignments are discretely delineated, in-class discussions will be accumulative, and so students should also be prepared in any given session to return to or integrate material from any or all previous sessions.

In addition to readings, assignments include bi-weekly quizzes, a mid-term report that comparatively analyzes two modes of foresight activities and a final group-based application of a foresight method to a problem, sociotechnical development or project of the group's choosing. Individually and collectively, these assignments are intended to assess emerging trends, build usable visions of the future, make and justify predictions, and articulate ways to shape possible outcomes.

**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."]

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**Course Calendar:**

(Each week will comprise two fifty-minute sessions.)

**Week 1**

**Introduction to the Course and Its Readings: Who's, Why's, When's And Whiter's of Future-Oriented Theories and Praxis**

During this initial week, students will be oriented to the class's structure and performance expectations, and will be presented with historical and contemporary approaches to managing uncertainty over time.

**Week 2**

**How Institutions Learn To Grapple with Possible Futures**

Students will critically examine and compare historical socio-technical contexts that have encouraged institutions to invest significant resources in preparing for and attempting to partly mold likely and possible futures. Specific focus will fall on the importance of critical foresight exercises in knowledge economies.



Tzu, S. (1963). *The Art of War*, translated by Samuel B. Griffith. New York: Oxford University, 65, 28-41.

Kelly, K. (1999). *New rules for the new economy*. Penguin, 1-22.

### **In-class Quiz #1**

### **Week 3**

#### **Fundamental Terminology & General Tools**

Students will be exposed to the conceptual and terminological essentials of futures studies, and explanations of the value of expanding individuals' and institutions' knowledge basis for decision-making through future foresight exercises.

Pereira, A. G., Von Schomberg, R. and S. Funtowicz. (2007). Foresight Knowledge Assessment. *International Journal of Foresight and Innovation Policy*, 3(1): 53-76.

Georghiou, L. (Ed.). (2008). *The Handbook of Technology Foresight: Concepts and Practice*. Edward Elgar Publishing, 3-43.

Selin, C. (2008). The Sociology of the Future: Tracing Stories of Technology and Time, *Sociology Compass*, 2(6), 1878-1895.

### **Week 4**

#### **Epistemic and Ethical Virtues and Risks of Foresight Exercises**

Readings will describe the benefits and costs of the dominant forms of foresight techniques, in terms of types of useful knowledge they produce, and the social and political blind spots they can introduce into decision-making processes.

Multiple Authors (2000) Part I: Prediction as Problem, in Sarewitz, D., R. A. Peele & R. Byerly (eds.) *Prediction: Science, Decision Making and the Future of Nature*. Washington, D. C.: Island Press, 11-60.

### **In-class Quiz #2**

### **Week 5**

#### **Technology Foresight**

Students will learn how technology foresight exercises can be of value in the formulation of policymaking for the development and general governance of technological infrastructure, research and development programs and technology transfer strategies.

The United Nations Industrial Development Organization's (2003) *Foresight Methodologies*, 1-17.

Eriksson, E. A., & Weber, K. M. (2008). Adaptive Foresight: Navigating the Complex Landscape of Policy Strategies. *Technological Forecasting and Social Change*, 75(4), 462-482.

### Week 6

#### **Science and Technology Studies**

Students will examine methods and theories of science and technology studies research that are rich sources of foresight tools, particularly in the context of sociotechnical systems.

Hughes, T. P. (1987). The Evolution of Large Technological Systems, in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, 51-82.

Winner, L. (2002). Are Humans Obsolete?. *The Hedgehog Review*, 4(3), pp25-44.

Hess, D. J. (2005). Technology- and Product-Oriented Movements: Approximating Social Movement Studies and Science and Technology Studies. *Science, Technology & Human Values*, 30(4), 515-535.

#### **In-class Quiz #3**

### Week 7

#### **Anticipatory Governance**

Students will explore theories of and techniques for technology governance that focus less on foresight and more on continuous interdisciplinary monitoring throughout the innovation process, with the aim of modulating innovation and systems designs to privilege desirable values and greater social value, and to anticipate the the social and political consequences of technological changes.

Guston, D. H., & Sarewitz, D. (2002). Real-time Technology Assessment. *Technology in society*, 24(1), 93-109.

Guston, D. H. (2014). Understanding “Anticipatory Governance,” *Social Studies of Science*, 44(2), 218-242.

### Week 8

#### **Scenarios Part 1: Elements and Schools of Thought**

Students will learn to identify the approaches of various schools of thought to scenario planning, to understand the different elements of scenario development and to determine the ripeness of problem spaces for the deployment scenario planning.

Kleiner, Art (1996). “Mystics.” *The Age of Heretics: Heroes, Outlaws, and the Forerunners of Corporate Change*. New York: Currency Doubleday, 135-180.

SEE Magazine. (2006). “Connecting Present and Future: A Conversation with Chris Ertel and Maryln Watson.” *SEE Magazine*, Spring, 1-8.

Bradfield, R., Wright, G., Burt, G., Cairns, G., and Van Der Heijden, K. (2005). "The origins and evolution of scenario techniques in long range business planning." *Futures*, 37(8), 795-812.

#### **In-class Quiz #4**

#### **Week 9**

#### **Scenarios Part 2: Development and Narration-Performance**

Students will develop techniques necessary for the creation of plausible scenarios, including the capacity for delivering complex scenario clusters that point to considerably different possible futures; the ability to translate scenario narratives so that multiple stakeholder groups from diverse cultural backgrounds and various publics can understand and be moved by them.

Ogilvy, J & Schwartz, P. (2004). *Plotting Your Scenarios*. Global Business Network, 1-21.  
Flowers, B. S. (2003). "The Art and Strategy of Writing Scenarios." *Strategy and Leadership*, 31(2), 29-33.

#### **Week 10**

#### **Comparative Analysis Part 1**

Students will engage in robust discussion and debate concerning the comparative merits and flaws of the foresight techniques covered to-date. At the conclusion of these classroom exercises, each student will choose two foresight approaches and write a 1500-word report on relative merits and flaws in a context of their choosing. Additionally, students will form 3-5 person groups in which they will ultimately produce their final project: an application of one of the foresight methods covered in class to a societal problem, sociotechnical system or institutional development strategy. **This group project can be created and delivered in any media format that team members choose, but the chosen form must be approved by the instructor before the end of week 10.**

#### **In-class Quiz #5**

#### **Week 11**

#### **Group Project Proposal Presentation**

Student groups will give five-minute long presentations of their proposed final projects and receive in-class feedback from their classmates, and office hour feedback from the instructor.

**The Comparative Analysis Report is due at the end of this week.**

#### **Week 12**

## Preparation of Group Projects

Student groups will work on their final projects during class time. The instructor and a small group of visiting graduate students and professors with relevant expertise will circulate throughout the classroom providing feedback and assistance with technical or conceptual issues.

### Week 13

#### **In-class Presentations of Group Projects**

Each student group will perform a 20-minute long presentation of their final project and receive comments from classmates.

### Week 14

#### **In-class Presentations of Group Projects**

Each student group will perform a 20-minute long presentation of their final project and receive comments from classmates.

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

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**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 1/3<sup>rd</sup> of a letter grade deducted each day they are late. Advanced written or e-mailed notice that you will miss a class or have to turn in an assignment late could help your cause.

**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.

**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](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/>

## FIS 307 Navigating Futures Required Reading List

- Bradfield, R., Wright, G., Burt, G., Cairns, G., and Van Der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures*, 37(8), 795-812.
- Eriksson, E. A., & Weber, K. M. (2008). Adaptive Foresight: Navigating the Complex Landscape of Policy Strategies. *Technological Forecasting and Social Change*, 75(4), 462-482.
- Flowers, B. S. (2003). The Art and Strategy of Writing Scenarios. *Strategy and Leadership*, 31(2), 29-33.
- Georghiou, L. (Ed.). (2008). *The Handbook of Technology Foresight: Concepts and Practice*. Edward Elgar Publishing, 3-43.
- Guston, D. H. (2014). Understanding "Anticipatory Governance." *Social Studies of Science*, 44(2), 218-242.
- Guston, D. H., & Sarewitz, D. (2002). Real-time Technology Assessment. *Technology in society*, 24(1), 93-109.
- Hess, D. J. (2005). Technology- and Product-Oriented Movements: Approximating Social Movement Studies and Science and Technology Studies. *Science, Technology & Human Values*, 30(4), 515-535.
- Hughes, T. P. (1987). The Evolution of Large Technological Systems. In *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, 51-82.
- Kelly, K. (1999). *New rules for the new economy*. Penguin, 1-22.
- Kleiner, Art (1996). Mystics. In *The Age of Heretics: Heroes, Outlaws, and the Forerunners of Corporate Change*. New York: Currency Doubleday, 135-180.
- Multiple Authors (2000) Part I: Prediction as Problem. In Sarewitz, D., R. A. Peele & R. Byerly (eds.) *Prediction: Science, Decision Making and the Future of Nature*. Washington, D. C.: Island Press, 11-60.
- Ogilvy, J & Schwartz, P. (2004). Plotting Your Scenarios. *Global Business Network*, 1-21.
- Pereira, A. G., Von Schomberg, R. and S. Funtowicz. (2007). Foresight Knowledge Assessment. *International Journal of Foresight and Innovation Policy*, 3(1): 53-76.
- SEE Magazine. (2006). Connecting Present and Future: A Conversation with Chris Ertel and Maryln Watson. *SEE Magazine*, Spring, 1-8.
- Selin, C. (2008). The Sociology of the Future: Tracing Stories of Technology and Time. *Sociology Compass*, 2(6), 1878-1895.
- The United Nations Industrial Development Organization's (2003) Foresight Methodologies, 1-17.
- Tzu, S. (1963). *The Art of War*, translated by Samuel B. Griffith. New York: Oxford University, 65, 28-41.
- Winner, L. (2002). Are Humans Obsolete? *The Hedgehog Review*, 4(3), pp25-44.