



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 332 Title Risk and the Future 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: Literacy and Critical Inquiry-L Mandatory Review: (Choose one)

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 (SQ/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): [Handwritten Signature]

Arizona State University Criteria Checklist for
LITERACY AND CRITICAL INQUIRY - [L]

Rationale and Objectives

Literacy is here defined broadly as communicative competence—that is, competence in written and oral discourse. **Critical inquiry** involves the gathering, interpretation, and evaluation of evidence. Any field of university study may require unique critical skills that have little to do with language in the usual sense (words), but the analysis of written and spoken evidence pervades university study and everyday life. Thus, the General Studies requirements assume that all undergraduates should develop the ability to reason critically and communicate using the medium of language.

The requirement in Literacy and Critical Inquiry presumes, first, that training in literacy and critical inquiry must be sustained beyond traditional First Year English in order to create a habitual skill in every student; and, second, that the skill levels become more advanced, as well as more secure, as the student learns challenging subject matter. Thus, two courses beyond First Year English are required in order for students to meet the Literacy and Critical Inquiry requirement.

Most lower-level [L] courses are devoted primarily to the further development of critical skills in reading, writing, listening, speaking, or analysis of discourse. Upper-division [L] courses generally are courses in a particular discipline into which writing and critical thinking have been fully integrated as means of learning the content and, in most cases, demonstrating that it has been learned.

Notes:

1. ENG 101, 107 or ENG 105 must be prerequisites
2. Honors theses, XXX 493 meet [L] requirements
3. The list of criteria that must be satisfied for designation as a Literacy and Critical Inquiry [L] course is presented on the following page. This list will help you determine whether the current version of your course meets all of these requirements. If you decide to apply, please attach a current syllabus, or handouts, or other documentation that will provide sufficient information for the General Studies Council to make an informed decision regarding the status of your proposal.

Revised April 2014

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

ASU - [L] CRITERIA		
TO QUALIFY FOR [L] DESIGNATION, THE COURSE DESIGN MUST PLACE A MAJOR EMPHASIS ON COMPLETING CRITICAL DISCOURSE--AS EVIDENCED BY THE FOLLOWING CRITERIA:		
YES	NO	Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 1: At least 50 percent of the grade in the course should depend upon writing assignments (see Criterion 3). Group projects are acceptable only if each student gathers, interprets, and evaluates evidence, and prepares a summary report. <i>In-class essay exams may not be used for [L] designation.</i></p> <p style="text-align: right;">Syllabus</p>
<p>1. Please describe the assignments that are considered in the computation of course grades--and indicate the proportion of the final grade that is determined by each assignment.</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-1</p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 2: The writing assignments should involve gathering, interpreting, and evaluating evidence. They should reflect critical inquiry, extending beyond opinion and/or reflection.</p> <p style="text-align: right;">Syllabus</p>
<p>1. Please describe the way(s) in which this criterion is addressed in the course design.</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-2</p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 3: The syllabus should include a minimum of two writing and/or speaking assignments that are substantial in depth, quality, and quantity. Substantial writing assignments entail sustained in-depth engagement with the material. Examples include research papers, reports, articles, essays, or speeches that reflect critical inquiry and evaluation. Assignments such as brief reaction papers, opinion pieces, reflections, discussion posts, and impromptu presentations are not considered substantial writing/speaking assignments.</p> <p style="text-align: right;">Syllabus</p>
<p>1. Please provide relatively detailed descriptions of two or more substantial writing or speaking tasks that are included in the course requirements</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-3</p>		

ASU - [L] CRITERIA

YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	CRITERION 4: These substantial writing or speaking assignments should be arranged so that the students will get timely feedback from the instructor on each assignment in time to help them do better on subsequent assignments. <i>Intervention at earlier stages in the writing process is especially welcomed.</i>	Syllabus
1. Please describe the sequence of course assignments--and the nature of the feedback the current (or most recent) course instructor provides to help students do better on subsequent assignments			
2. Also: <div style="border: 1px solid black; border-radius: 50%; padding: 10px; margin: 10px auto; width: fit-content;"><p>Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p></div> <p>C-4</p>			

Course Prefix	Number	Title	General Studies Designation
FIS	332	Risk and the Future	L

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)
Criteria 1	FIS 332 includes three writing assignments that require students to gather, analyze and synthesize evidence around future risks, and write an articulate and accessible article presenting their analysis.	Syllabus Page 3 These three writing assignments are worth 60% of the course grade (10% for assignment 1, 20% for assignment 2 and 30% for assignment 3). Both the drafts and the final assignments are graded for assignments 2 and 3.
Criteria 2	The backbone of the course comprises three spaced-out writing assignments that develop skills in gathering, evaluating and using evidence around emergent risks. The progression ensures the development and parallel evaluation of critical analysis and communication skills.	Syllabus Pages 2-3 Writing assignment 1: Risk Narrative. Students write about a risk they have a personal interest in. 800 - 1200 words. Writing Assignment 2: Future Risk Analysis. Students are encouraged to build upon their first writing assignment and will gather, evaluate, and use evidence to critically analyze an emergent risk. 1200-1600 words. Writing Assignment 3: Risk Innovation. Students will write an article that demonstrates their research and critical analysis skills along with their understanding of risk innovation. 1200-1600 words.
Criteria 3	The writing assignments are designed to be substantial in depth, quality and quantity and include a narrative, analysis, and article.	Writing assignments 2 and 3 require substantial research, analysis, synthesis and articulation. Specifically, assignment 2 requires students to research and analyze an emergent risk from within a range of domains. Assignment 3 requires students to analyze the risk in assignment 2 within the framework of Risk Innovation, using creative thinking, critical analysis and grounded research.
Criteria 4	Drafts of Writing Assignments 2 and 3 are required at the initial stages of writing. These are graded, and students will receive feedback and guidance from them on the final articles.	Writing assignments 2 and 3 require students to submit a first draft for review. Timely feedback will be provided to inform the final assignment.

FIS 332 - Risk and the Future Course description: Examines the evolving global risk landscape that is resulting from rapidly increasing global connectivity, tight coupling and massive complexity. Develops an understanding of how innovation in society is changing the risk landscape and considers how innovation in approaches to risk can help navigate this emerging landscape. Topics include technological risk, sociopolitical risk, catastrophic risk, existential risk, converging technologies, perception and uncertainty, anticipation, precaution, uncertainty and risk innovation.

Risk and the Future

FIS 332

Monday, Wednesday, Friday, 9:40 AM – 10:30 PM, ED 238

Andrew Maynard

Andrew.maynard@asu.edu 480-727-8831

Office: Interdisciplinary B, Room 366

Office Hours: Tuesday 2:00-4:00 PM or by appointment

Course description:

This course examines the evolving global risk landscape that is resulting from rapidly increasing global connectivity, tight coupling, and massive complexity. It develops an understanding of how innovation in society is changing the risk landscape, and considers how innovation in approaches to risk can help navigate this emerging landscape. Topics covered include technological risk, sociopolitical risk, catastrophic risk, existential risk, converging technologies, perception and uncertainty, anticipation, precaution, uncertainty, and risk innovation.

Course objectives and learning outcomes:

Course objectives

This course will:

- Explore the connections between social and technological innovation and risk.
- Examine the limitations of current approaches to risk in supporting beneficial and responsible innovation
- Introduce and develop the concept of risk as a threat to value across multiple constituencies
- Introduce and develop the concept of the risk landscape
- Explore how innovation in society is leading to a rapidly evolving risk landscape, and how this in turn impacts innovation.
- Examine how emerging technologies and sociotechnological convergence, including the “fourth industrial revolution”, alter the risk landscape.
- Introduce the concept of risk innovation, and explore how innovation in approaches to risk can help navigate the emerging risk landscape.
- Explore the application of responsible innovation and anticipatory governance to navigating emerging risk landscapes
- Apply risk landscaping and risk innovation to three domains impacted by future innovation: technological convergence (the 4th industrial revolution), equity, and the water/energy/food nexus.

Learning outcomes

On completion of this course, students will be able to:

- **Research effectively**, through identifying and leveraging reliable sources, developing robust questions, theories, and methods, and using formal/disciplinary methods.
- **Refine basic skills for success**, including time management, leadership, group work.
- **Collaborate & learn across disciplines and cultures** by reading and thinking in interdisciplinary ways, and appreciating the work & worth of other disciplines.

- **Envision futures** using foresight methods to assess emerging trends, build usable visions of the future, make and justify predictions, and articulate ways to shape possible outcomes.
- **Creatively innovate** possible responses to technologies, future scenarios, methods for engagements, and non-zero sum sociotechnical pathways.
- **Discuss the limitations in current approaches to risk** in an emerging connected, tightly coupled, and highly complex world.
- **Explain why understanding and approaching risk in different ways is necessary** for beneficial, responsive, and responsible innovation in society.
- **Describe what the risk landscape is**, and why it is important
- **Discuss how social and technological innovation are impacting the risk landscape.**
- **Explain risk as a threat to value** across and within multiple constituencies
- **Describe what risk innovation is**, and how it can be used to help navigate an emerging and evolving risk landscape
- **Discuss responsible innovation and anticipatory governance**, and how they apply to future risks.
- **Apply risk landscaping and risk innovation** to a range complex emerging challenges.

Course Requirements and Grading:

Participation in class: All students are expected to actively participate in class and contribute to discussions, through asking questions; offering ideas, insights and opinions; and challenging ideas. All students will start with an A grade for participation. This will go up or down over the course of the class depending on level of participation.

Discussion boards: The class will include regular discussion board assignments, based on readings or research. These will include informal narratives of between 200 – 400 words that capture the ideas and insights that are stimulated by the readings or research. Discussion board posts are not expected to be polished prose, but they are expected to demonstrate understanding of the material, and careful consideration of what can be learned from it. Discussion contributions that are submitted on time and demonstrate diligent consideration of the material will be awarded an A. Contributions that do not suggest due diligence will be graded down. Exceptionally insightful contributions may be awarded an A+.

C2 Writing assignment 1: Risk Narrative. Students will be asked to prepare and submit at 800 – 1200 word narrative on a risk that they have a personal interest in. The narrative should draw on research and evidence around the selected risk, and should demonstrate critical thinking. It should be written in the first person, and provide a compelling and personal perspective on the nature of the selected risk, and its social relevance. It should be written at the level of a highly readable blog post. The selected risk can related to health, environment, well-being, sustainability, financial security, personal and cultural identity, equity and equality, social interactions, belief, or other areas where there are threats to “value”. The assignment will be due at the end of week 3. Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

C3 Writing assignment 2: Future risk analysis. Students will be asked to prepare and submit a 1200 – 1600 word in-depth analysis of an emergent risk. Students will be encouraged to use the risk addressed in the first writing assignment, but this is not essential. The article – written at a level and in a style of a “The Conversation” article (<https://theconversation.com/us>) and fully referenced – should draw on research using peer review, gray and online sources, should be informed by class readings, and should include a critical analysis of the nature and significance of the selected risk. As in writing assignment 1, the selected

C2

risk can related to health, environment, well-being, sustainability, financial security, personal and cultural identity, equity and equality, social interactions, belief, or other areas where there are threats to “value”. The article should clearly articulate challenges to addressing the risk.

C4

A first draft of the assignment will be due in week 6, with feedback provided within a week. The final article will be due in week 9. Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

C3

Writing assignment 3: Risk Innovation. Students will be asked to prepare and submit a 1200 – 1600 word article on risk innovation as it applies to the risk selected for writing assignment 2. The article should draw on research and critical analysis, and should demonstrate understanding of the principles of risk

C2

innovation. It should conclude with creative, innovative and practical approaches to addressing the risk that are grounded in evidence and analysis. The article should be written for a non-expert graduate-level audience, in the style of a piece that might appear in “The Conversation” (<https://theconversation.com/us>). It should be fully referenced.

C4

A first draft of the assignment will be due in week 12, with feedback provided within a week. The final article will be due in week 15. Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

C1

Participation in Class	20%
Writing assignment 1 Final	10%
Writing assignment 2 Draft	5%
Writing assignment 2 Final	15%
Writing assignment 3 Draft	5%
Writing assignment 3 Final	25%
<u>Discussion Boards</u>	<u>20%</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.”]

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.

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, 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](#).

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/>

Course Format

The course will be taught over three classes each week, typically following the format:

Mondays 9:40 AM – 10:30 AM Lecture/theory

Wednesdays 9:40 AM – 10:30 AM Exercises

Fridays 9:40 AM – 10:30 AM Discussion

It is essential that you attend every class to receive good grades for participation. If you cannot make a particular class, please ask the instructor for permission to miss the class, along with instructions on how to make up the time.

Course Calendar:

Week 1

Overview: An introduction to risk; issues and challenges where addressing risk is important (including health, well-being, environment, sustainability, technology innovation, education, social and environmental resilience, and equity); the limitations of conventional approaches to risk in today's rapidly evolving world; the nature of emerging risk challenges; how global connectivity, tight coupling, and massive complexity, are changing the nature of risk; the impact of social and technological innovation on risk; the need for new approaches to and understandings of risk if we are to ensure beneficial, responsive, and responsible innovation in society.

Readings: No readings in preparation for this week

Week 2

Future risk: Imaging what could go wrong with innovation in society; emerging technologies; convergence and the "4th industrial revolution"; complex, tightly-coupled systems and catastrophic risk; global boundaries; existential risk; long tail events; risk perception and conflicting interests; the importance of risk to self identity, social standing, and community.

Readings:

Martin Reese (2014) The world in 2050 and beyond. The New Statesman.

<http://www.newstatesman.com/scitech/2014/11/martin-rees-world-2050-and-beyond>

Steffen, W., et al. (2015). "Planetary boundaries: Guiding human development on a changing planet." *Science* **347**(6223).

Assignment: *Discussion board posts on the week's reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

Week 3

Risk as a social construct: Understanding risk from a social perspective; nature of expertise and predictability; framing and risk; the precautionary principle; risk perception; rationality and risk; risk in socially relevant decision-making.

Readings:

Jasanoff, S. (2007). "Technologies of Humility." *Nature* **450**: 33.

Introduction from Kahneman, D. (2013). *Thinking Fast and Slow*, Farrar, Straus and Giroux.

von Schomberg, R. (2006). "The precautionary principle and its normative challenges." *Implementing the Precautionary Principle: Perspectives and Prospects*: 19-41.

Assignment: *Discussion board posts on the week's readings are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

Writing assignment 1 (risk narrative) is due on Blackboard on Friday.

Week 4

Rethinking risk: Approaching risk as a threat to “value”; exploring the nature of value and risk from the perspective of multiple constituencies; introducing the concept of “value deficits”; exploring the idea of risk as a social construct; metaphors for risk, and how it relates to innovation in society; introducing the risk landscape.

Readings:

Executive Summary from IRGC (2005). Risk Governance: Towards an Integrative Approach. Geneva, International Risk Governance Council.

ETC Group (2013) synthetic biology: the bioeconomy of landlessness and hunger.

<http://www.etcgroup.org/sites/www.etcgroup.org/files/SYN%20BIO%20BIOECONOMY%20OF%20LANDLESSNESS%20AND%20HUNGER%20Jun2013.pdf>

Todd VanDerWerff Author Jon Ronson on the consequences of online shaming and why we all need more empathy (2015) Vox <http://www.vox.com/2015/9/7/9272781/jon-ronson-publicly-shamed-interview>

Assignment: *Discussion board posts on the week’s readings are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

Week 5

Mapping the risk landscape: Imagining the future as an evolving, complex landscape to be navigated; exploring how a shifting risk landscape influences social, technological and economic development; exploring the need to navigate an uncertain and shifting risk landscape to support beneficial, responsive and responsible innovation.

No readings this week

Week 6

Review and recap

Readings:

Müller, V. C. and N. Bostrom (2014). Future Progress in Artificial Intelligence: A Survey of Expert Opinion. Fundamental Issues of Artificial Intelligence. V. C. Müller. Berlin, Synthese Library; Springer.

WEF (2015). Global Risks 2015. Tenth Edition. Geneva, Switzerland, World Economic Forum.

Assignment: *Discussion board posts on the week’s reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

First draft of writing assignment 2 (future risk analysis) due on Blackboard on Friday

Week 7

Navigating future risk: The need for innovation in how we think about risk and how we respond to risk; developing the definition, principles, and narrative framing, for risk innovation.

Readings:

Maynard, A. D. (2015). "Why we need risk innovation." Nature Nanotechnology **10**: 730-731.

Assignment: *Discussion board posts on the week’s reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

Week 8

Disruptive influences; Using creativity and imagination to open up new possibilities for navigating the future risk landscape; seeing new opportunities through transdisciplinary interactions; thinking creatively about challenge and solution spaces; exploring a “fail fast, fail forward” approach to risk innovation.

Readings:

Maynard, A. D. (2014). "Responsible Innovation – Seventeen Haiku." Retrieved July 27 2015, from <http://2020science.org/2014/12/23/responsible-innovation-seventeen-haiku/>.

NPR (2015) Jace Clayton Translates Stocks Into Sound. <http://www.npr.org/2015/08/28/435493765/jace-clayton-translates-stocks-into-sound>

WEF (2009) Educating the next generation of entrepreneurs.

http://www3.weforum.org/docs/WEF_GEI_EducatingNextEntrepreneurs_ExecutiveSummary_2009.pdf

Assignment: *Discussion board posts on the week's reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

Week 9

Responsible innovation: translating creative ideas into practical action on responsible innovation and future risk; applying dimensions of responsible innovation to navigating the risk landscape; building risk innovation approaches that are useable and useful; defining and reviewing goals and outcomes for responsible innovation; anticipatory governance.

Readings:

Stilgoe, J., et al. (2013). "Developing a framework for responsible innovation." *Research Policy* 42(9): 1568-1580.

Sarewitz, D. (2011). Anticipatory Governance of Emerging Technologies. *Growing Gap between Emerging Technologies and Legal-Ethical Oversight: the Pacing Problem*. G. E. Marchant, B. R. Allenby and J. R. Herkert. 7: 95-105.

Maynard (2015) Why we must develop new technologies responsibly. World Economic Forum <https://agenda.weforum.org/2015/03/why-we-must-develop-new-technologies-responsibly/>

Assignment: *Discussion board posts on the week's reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.*

The final version of writing assignment 2 (future risk analysis) is due on Blackboard on Friday

Week 10

Review and recap.

Readings:

Drew Endy (2005) COMIC 1. Adventures in Synthetic Biology. *Nature* 438, 449 - 453

Week 11

Navigating the 4th industrial revolution: How social and technological convergence are changing the risk landscape; using landscape mapping and risk innovation to chart potential courses toward beneficial, responsible and responsive futures.

Readings:

Daniel Oberhaus (2015) This Is What the Fourth Industrial Revolution Looks Like. *Vice/Motherboard*. <http://motherboard.vice.com/read/life-after-the-fourth-industrial-revolution>

Stéphanie Thomson (2015) Is this the start of a fourth industrial revolution? World Economic Forum <https://agenda.weforum.org/2015/09/fourth-industrial-revolution/>

Assignment: Discussion board posts on the week's readings are due on Blackboard on Wednesday; comments on discussion posts are due Friday.

Week 12

Building equity in the future: Exploring the risk landscape around innovation and equity; developing risk dimensions around social, financial, technological, health, racial, gender, identity and educational equity; the future societal consequences of equity gaps; how risk landscaping illuminates the nature of emerging risks to growing and maintaining inequity; using risk innovation to help reduce future equity gaps.

No readings this week

Assignment: First draft of writing assignment 3 (risk innovation) due on Blackboard by Friday.

Week 13

Managing the water, energy, food, climate nexus: Understanding future vulnerabilities and risks from the global intersection of water, energy and food needs and systems; mapping out the risk landscape around the water, energy, food nexus; exploring innovative approaches to navigating the risk landscape.

Readings:

Richard A. Matthew (2014) Beyond The "Water-Food-Energy-Climate Nexus". http://www.water-energy-food.org/en/news/view_1696/beyond-the-water-food-energy-climate-nexus.html

Stockholm Environment Institute (2011). Understanding the Nexus Background paper for the Bonn2011 Nexus Conference. http://wef-conference.gwsp.org/fileadmin/documents_news/understanding_the_nexus.pdf

Assignment: Discussion board posts on the week's reading are due on Blackboard on Wednesday; comments on discussion posts are due Friday.

Week 14

Rough Guides to Future Risks: In-class exercise, bringing all aspects of the course together in building practical navigational guides for emerging risk landscapes.

Week 15

No class

Assignment: Final draft of writing assignment 3 (risk innovation) due on Blackboard by Friday.

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.

Writing Assignment 1

FIS 332

Rubric

Assignment description: Risk Narrative

Prepare and submit an 800 – 1200 word narrative on a risk that you have a personal interest in. The narrative should draw on research and evidence around the selected risk, and should demonstrate critical thinking. It should be written in the first person, and provide a compelling and personal perspective on the nature of the selected risk, and its social relevance. It should be written at the level of a highly readable blog post.

The selected risk can related to health, environment, well-being, sustainability, financial security, personal and cultural identity, equity and equality, social interactions, belief, or other areas where there are threats to “value”.

Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

Rubric

Criteria	Expectation	Relative weighting
Risk	The narrative should inform the reader about the nature of the chosen risk. It should be informative, relevant, based on research and evidence, and reflect critical thinking.	30
Research	Demonstrate the effective use of sources, including online, “gray” and peer review sources. Reference sources using the APA style guide (http://libguides.asu.edu/citing/APA).	10
Evidence	Use evidence to make points and develop arguments. You should places greater weight on more credible sources of evidence, and less weight on less credible sources.	10
Critical thinking	Show evidence of critical thinking in how information is evaluated and used.	20
Readability	Easy to read, and engaging and understandable to someone with a high school education, but without specific knowledge of the area you are writing about. An informal style, written in the first person. Sentences and paragraphs should be kept short and focused, to ensure a high level of readability. Avoid jargon, and explain words and concepts that may be unfamiliar to the reader.	30

Writing Assignment 2

FIS 332

Rubric

Assignment description: Future Risk Analysis

Prepare and submit a 1200 – 1600 word in-depth analysis of an emergent risk. You may use the risk addressed in writing assignment 1, but this is not essential. The article – written at a level and in a style of a “The Conversation” article (<https://theconversation.com/us>) and fully referenced using the APA style guide – should draw on research using peer review, gray and online sources. It should also be informed by class readings, and should include a critical analysis of the nature and significance of the selected risk.

The selected risk can related to health, environment, well-being, sustainability, financial security, personal and cultural identity, equity and equality, social interactions, belief, or other areas where there are threats to “value”. The article should clearly articulate challenges to addressing the risk.

A first draft of the assignment will be due in week 6, with feedback provided within a week. The final article will be due in week 9. Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

Rubric for the draft and the final article (see relative weights)

Criteria	Expectation	Relative weighting Draft/Final
Risk	A clear articulation of the nature of the risk, what makes it emergent, what and who are impacted by it (and how), and challenges and opportunities to addressing it.	20/20
Research	Demonstrate the effective use of sources, including online, “gray” and peer review sources. Reference sources using the APA style guide (http://libguides.asu.edu/citing/APA).	30/20
Evidence	Use evidence to make points and develop arguments. Show evidence of weighing sources according to their credibility	30/10
Critical thinking	Show evidence of critical thinking in how information is evaluated and used.	10/10
Readability	Understandable to someone with a high school education, but without specific knowledge of the area you are writing about. Written in an engaging and compelling style, similar to content on The Conversation – short sentences, focused paragraphs, clear narrative structure, absence of unnecessary jargon.	10/40

Writing Assignment 3

FIS 332

Rubric

Assignment description: Risk Innovation

Prepare and submit a 1200 – 1600 word article on risk innovation as it applies to the risk selected for writing assignment 2. The article should draw on research and critical analysis, and should demonstrate understanding of the principles of risk innovation. It should conclude with creative, innovative and practical approaches to addressing the risk that are grounded in evidence and analysis. The article should be written for a non-expert graduate-level audience, in the style of a piece that might appear in “The Conversation” (<https://theconversation.com/us>). It should be fully referenced.

A first draft of the assignment will be due in week 12, with feedback provided within a week. The final article will be due in week 15. Assignments that are late, deviate substantially from the rubric, or do not demonstrate due diligence, will be graded down. Exceptionally insightful narratives may be awarded an A+.

Rubric for the draft and the final article (see relative weights)

Criteria	Expectation	Relative weighting Draft/Final
Risk Innovation	Demonstrate understanding of the concept and principles of Risk Innovation and their application	20/10
Creativity	Evidence of creativity and practicality in proposed ideas on how to address the selected risk	10/20
Research	Demonstrate the effective use of sources, including online, “gray” and peer review sources. Reference sources using the APA style guide (http://libguides.asu.edu/citing/APA).	20/10
Evidence	Use evidence to make points and develop arguments. Show evidence of weighing sources according to their credibility	30/10
Critical thinking	Show evidence of critical thinking in how information is evaluated and used.	10/20
Readability	Understandable to someone with a high school education, but without specific knowledge of the area you are writing about. Written in an engaging and compelling style, similar to content on The Conversation – short sentences, focused paragraphs, clear narrative structure, absence of unnecessary jargon. Effective use of narrative structure to engage and inform the reader.	10/30

FIS 332 Risk and the Future Required Reading List

- Martin Rees (2014) The world in 2050 and beyond. *The New Statesman*. <http://www.newstatesman.com/scitech/2014/11/martin-rees-world-2050-and-beyond>
- Steffen, W., et al. (2015). "Planetary boundaries: Guiding human development on a changing planet." *Science*, **347**(6223).
- Jasanoff, S. (2007). "Technologies of Humility." *Nature*, **450**: 33.
- Introduction from Kahneman, D. (2013). *Thinking Fast and Slow*, Farrar, Straus and Giroux.
- von Schomberg, R. (2006). "The precautionary principle and its normative challenges." *Implementing the Precautionary Principle: Perspectives and Prospects*, 19-41.
- Executive Summary from IRGC (2005). Risk Governance: Towards an Integrative Approach. Geneva, International Risk Governance Council.
- ETC Group (2013) synthetic biology: the bioeconomy of landlessness and hunger. <http://www.etcgroup.org/sites/www.etcgroup.org/files/SYN%20BIO%20BIOECONOMY%20F%20LANDLESSNESS%20AND%20HUNGER%20Jun2013.pdf>
- Todd VanDerWerff Author Jon Ronson on the consequences of online shaming and why we all need more empathy (2015) Vox <http://www.vox.com/2015/9/7/9272781/jon-ronson-publicly-shamed-interview>
- Müller, V. C. and N. Bostrom (2014). Future Progress in Artificial Intelligence: A Survey of Expert Opinion. *Fundamental Issues of Artificial Intelligence*. V. C. Müller. Berlin, Synthese Library; Springer.
- WEF (2015). Global Risks 2015. Tenth Edition. Geneva, Switzerland, World Economic Forum.
- Maynard, A. D. (2015). "Why we need risk innovation." *Nature Nanotechnology*, **10**: 730-731.
- Maynard, A. D. (2014). "Responsible Innovation – Seventeen Haiku." Retrieved July 27 2015, from <http://2020science.org/2014/12/23/responsible-innovation-seventeen-haiku/>.
- NPR (2015) Jace Clayton Translates Stocks Into Sound. <http://www.npr.org/2015/08/28/435493765/jace-clayton-translates-stocks-into-sound>
- WEF (2009) Educating the next generation of entrepreneurs. http://www3.weforum.org/docs/WEF_GEI_EducatingNextEntrepreneurs_ExecutiveSummary_2009.pdf
- Sarewitz, D. (2011). Anticipatory Governance of Emerging Technologies. *Growing Gap between Emerging Technologies and Legal-Ethical Oversight: the Pacing Problem*. G. E. Marchant, B. R. Allenby and J. R. Herkert. **7**: 95-105.
- Maynard (2015) Why we must develop new technologies responsibly. World Economic Forum <https://agenda.weforum.org/2015/03/why-we-must-develop-new-technologies-responsibly/>
- Drew Endy (2005) COMIC 1. Adventures in Synthetic Biology. *Nature* 438, 449 - 453
- Daniel Oberhaus (2015) This Is What the Fourth Industrial Revolution Looks Like. Vice/Motherboard. <http://motherboard.vice.com/read/life-after-the-fourth-industrial-revolution>
- Stéphanie Thomson (2015) Is this the start of a fourth industrial revolution? World Economic Forum <https://agenda.weforum.org/2015/09/fourth-industrial-revolution/>
- Richard A. Matthew (2014) Beyond The "Water-Food-Energy-Climate Nexus". http://www.water-energy-food.org/en/news/view_1696/beyond-the-water-food-energy-climate-nexus.html
- Stockholm Environment Institute (2011). Understanding the Nexus Background paper for the Bonn2011 Nexus Conference. http://wef-conference.gwsp.org/fileadmin/documents_news/understanding_the_nexus.pdf