EST 391 Technology Assessment
Department of Technology & Society, Stony Brook University
Fall 2018, Mondays 5:30-8:20pm

PART 1: COURSE LOGISTICS AND DETAILS

Instructor:
Dr. Elizabeth Hewitt
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Office Phone: 631.632.3241
Email: elizabeth.hewitt@stonybrook.edu

Office Hours: Mondays 4pm – 5pm & Wednesdays 12pm – 2pm

Overview:
This class focuses on technologies and the systems in which they evolve to highlight different forms of evaluating technology. An overview of various methods, approaches, and tools for evaluation will be provided, including SWOT, STIP, forecasting, lifecycle assessments, and impact and risk assessments. The class will provide a context and framework for understanding policy applications of various technologies, as well as broader societal implications. Challenges and opportunities of technological change will be examined in the context of societal implications, including environmental change, ethics, economics, science and engineering, and infrastructure. Students evaluate real-world technologies throughout the semester.

Learning Objectives:
Successful students will understand strengths and weaknesses of various technology assessment methods, and demonstrate analytical skill in evaluating questions about technological change.

PART 2: MATERIALS, FORMAT, AND GRADING

Readings

All additional readings will be posted on Blackboard, and drawn from academic journals, research papers, national and international news sources, and other materials.

Grading: Grading for the course will consist of the following items, totaling 100 percent (100 points). Each of these is explained in more detail below.

- Quizzes (2): 20%
- Final Exam: 30%
- Homework Assignments (3): 30%
- Class participation: 20%
Quizzes (20%): There will be TWO quizzes throughout the session covering material from the prior weeks’ lectures. Quizzes will take place during Week 6 on 10/1/18 (covering weeks 1-5), and during Week 10 on 10/29/18 (covering weeks 6-9). Quizzes will take place in class at the end of the lecture, and are open book. You may use and refer to any of the course materials, lecture slides, and readings during the quiz.

Exam (30%): There will be one in-class exam at the end of the semester (on 12/10/18) covering material from the entire semester. The exam will also be open book (worth 30% of your grade).

Homework Assignments (30%): There will be 3 homework assignments throughout the semester, each worth 10 points (30 points total). The written portion of the assignment must be submitted on Blackboard by the start of class. The assignments are as follows:

1. Assignment 1 (due 9/17/18): Find a relevant article about technology assessment. There is wide latitude and flexibility about what is applicable for this assignment. Think of the themes and topics we've discussed in class so far regarding technological innovation, why we assess a technology, what impacts can occur in society (environmental, health, etc.), etc. Please be creative in your selection, but make sure it is from a reputable journalistic news source (e.g. no blogs, Wikipedia, biased/partisan articles, etc.). Prepare a **one paragraph summary along with the link to the article**, and submit on Blackboard. Be prepared to share your findings with the class.

2. Assignment 2 (due 11/5/18): Choose one of the twelve potentially disruptive technologies from the McKinsey report (OR choose your own that is not on their list) and offer some thoughts on where you think it will go. Do you agree with the McKinsey report's forecasting? Do you see any potential impacts they do or don't discuss? **Prepare a 1-2 paragraph summary and submit it on Blackboard.** Be prepared to share your findings/opinion with the class.

3. Assignment 3 (due 11/26/18): Find and review a technology assessment report – covering any technology or any method of assessment. Check government agencies (DOE, EPA, etc), think tanks (Rand Corporation, research foundations, etc.), private consulting firms, or other sources. Prepare a **1-2 paragraph overview** and submit it on Blackboard that briefly describes:
   - Who wrote the report?
   - What technology was assessed?
   - What tools or methods of assessment did they use?
   - What are the main findings or recommendations?

Be prepared to share your findings with the class.

Class Participation (20%): Class participation is an important component of the class, and we will cover various discussion topics after lecture relating to the assessment of technology. Your active participation in the discussion topic for the week is required, and all students are expected to contribute in order to earn the 20% towards your final grade. Specific topics for the week are listed on the course schedule so that you can prepare in advance.
PART 3: COURSE AND UNIVERSITY POLICIES

Late Submissions:
Late submissions will be reduced by 1 point for each day after the due date. Anything submitted more than 7 days after the due date will receive no credit.

Incomplete Policy:
Under emergency/special circumstances, students may petition for an incomplete grade. Circumstances must be documented and significant enough to merit an Incomplete. If you need to request an incomplete for this course, contact me for approval as far in advance as possible.

Academic Integrity:
Academic integrity is taken very seriously in this class, and students are held to high standards of honesty and accountability in their assignments and writing. ANY incidence of plagiarism in the class will have serious consequences, and will be reported to CEAS. As per Stony Brook guidelines:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at:
http://www.stonybrook.edu/commcms/academic_integrity/index.html

Disability Support Services (DSS) Statement
If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: http://www.stonybrook.edu/ehs/fire/disabilities

Critical Incident Management:
Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.
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<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>TOPIC</th>
<th>ASSIGNMENTS/READINGS</th>
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| 1    | 8/27  | Introduction to technology and technological innovation | **Read:** Braun Introduction & Braun Chapter 1  
**Assignment/Discussion Topic:** NONE                                                                                                                                  |
| 2    | 9/3   | LABOR DAY – NO CLASS                       | NONE                                                                                                                                                                                                               |
| 3    | 9/10  | Fundamentals of assessment and evaluation  | **Read:** Braun Chapter 2  
**In-Class Discussion Topic:** What to include/exclude from the definition of technology                                                                                                                  |
| 4    | 9/17  | Intro to Health Technology Assessment (HTA) | **Read:** HTA 101: Introduction to Health Technology Assessment – *Chapters 1 and 2*  
**Assignment:**  
Homework Assignment 1 due/discuss in class                                                                                                                        |
| 5    | 9/24  | Methods of analysis in HTA                 | **Read:** HTA 101: Introduction to Health Technology Assessment – *Chapters 4 and 5*  
AND Braun p. 125-130  
**In-Class Discussion Topic:** Indirect costs                                                                                                                       |
| 6    | 10/1  | Urban systems                              | **Read:**  
• NSF Sustainable Urban Systems  
**Assignment/Discussion Topic:** NONE  
QUIZ #1                                                                                                                                                    |
| 7    | 10/8  | NO CLASS – SBU FALL BREAK                  | NONE                                                                                                                                                                                                               |
| 8    | 10/15 | Risk Analysis                              | **Read:**  
• Braun Chapter 5  
• Hansson 2014 – Is Risk Analysis Scientific?  
• Kaplan – Quantitative Definition of Risk  
**In-Class Discussion Topic:** Distinguishing between uncertainty, hazard, and risk                                                                 |
| 9    | 10/22 | Disruptive technology                      | **Read:**  
• McKinsey Report – Read Executive Summary ONLY  
• Harvard Business Review article  
**In-Class Discussion Topic:** Globalization impacts at the individual/community scale                                                                 |
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<th>Week</th>
<th>Date</th>
<th>Topic: Impacts &amp; problems w/ technology</th>
<th>Read:</th>
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<tr>
<td>10</td>
<td>10/29</td>
<td>- Braun Chapter 4</td>
<td><strong>QUIZ #2</strong></td>
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**Assignment/Discussion Topic:**

**NONE**

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<tr>
<th>Week</th>
<th>Date</th>
<th>Topic: Environmental impact assessment (EIA)</th>
<th>Read:</th>
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<tr>
<td>11</td>
<td>11/5</td>
<td>- Braun Chapter 6</td>
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<td></td>
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<td>- Article: Environmental Impact Assessment – Retrospect and Prospect</td>
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**Assignment:**

**Homework Assignment 2 due/discuss in class**

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<th>Week</th>
<th>Date</th>
<th>Topic: Life Cycle Assessment</th>
<th>Read:</th>
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<tbody>
<tr>
<td>12</td>
<td>11/12</td>
<td>- (Skim) U.S. EPA: Life Cycle Assessment: Principles and Practice</td>
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**Discussion Topic:**

**EIA vs LCA**

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<th>Week</th>
<th>Date</th>
<th>Topic: Energy EIA</th>
<th>Read:</th>
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**Assignment/Discussion Topic:**

**NONE – HAPPY THANKSGIVING**

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<th>Week</th>
<th>Date</th>
<th>Topic: Strategic management</th>
<th>Read:</th>
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<td>14</td>
<td>11/26</td>
<td>- Braun Chapter 3</td>
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**Assignment:**

**Homework Assignment 3 due/discuss in class**

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<th>Week</th>
<th>Date</th>
<th>Topic: Technology now and in the future</th>
<th>Read:</th>
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<td>15</td>
<td>12/3</td>
<td>- Future-oriented Tech Assessment article</td>
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<td>- Essays on the future of technology assessment by the Woodrow Wilson Center (Princeton U.)</td>
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**Discussion Topic:**

**Technology as a social experiment**

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<th>Week</th>
<th>Date</th>
<th>Topic: IN-CLASS FINAL EXAM</th>
<th>No Reading Assignment</th>
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**Assignment/Discussion Topic:**

**NONE**