



# Stony Brook University

**Department of Technology & Society  
EST 440 (#91203), Interdisciplinary Research Methods**

Prerequisites: EST 391 and TSM major

Meeting Time: Monday, Wednesday 2:30-3:30pm

Meeting Location: 1310 Old Computer Science

**Instructor: Gang He**  
**Email: gang.he@stonybrook.edu**  
**Website: www.ganghe.net**

**Office Hours: 2-4pm, Friday**  
**Office Location: 1420 Old Computer Science**

**Teaching Assistant:**  
**TA Email:**

**TA Office Hours:**  
**Office location:**

**Course Description:** This course uses scientific research and engineering technology problem-solving as a framework for the synthesis of diverse disciplines studied by students in the first three undergraduate years. Provides students with experience in team problem-solving. Students will work in teams to conduct a technology assessment. Examples of various types of technology assessments will be studied, and students will discuss analysis techniques and team structuring in order to plan and execute a successful project.

**Learning Objectives:** The ability to research a technology related topic and present the information is a basic skill expected of all students in the Technological Systems Management program. At the end of this course, students should be able to:

- Initiate, conduct, and complete research on general technological subjects, incorporating material that cuts across disciplinary boundaries
- Work together as a team to present oral and written material
- Understand the process of “technology assessment”.
- Read and analyze lengthy descriptions of complex technological processes and policies.

**Class Readings:** This is a restricted list of various interesting and useful books that will be touched during the course. All readings will be posted on Blackboard.

- Department of Energy (DOE). (2015). Quadrennial Technology Review: An Assessment of Energy Technologies and Research Opportunities.
- U.S. Government Accountability Office (GAO). (2018). Artificial Intelligence: Emerging Opportunities, Challenges, and Implications for Policy and Research.
- Other readings on methods, team strategy, etc., will be available online on Blackboard.

**Grading:** Participation (10%), Homework (30%), Proposal (10%), Group presentation (50%). Late submission: One point is subtracted for each 24-hour submitted late (rounded up to the nearest integer). One free late day is allowed of your choice. Laptop or other electronic devices for class purpose only. A (93-100); A- (90-92); B+ (87-89); B (83-86); B- (80-82); C+ (77-79); C (73-76); C- (70-72); D+ (67-69); D (63-66); D- (60-62); F (59 or lower). Decimal will be rounded to the nearest integer. We do NOT offer extra credit or bump up grade. Please do your work to bump up your grade. No grade bump requests will be responded.

**Semester Schedule:**

Week	Date	Monday	Wednesday	Assignment
1	8/26,8/28	Introduction	Technology assessment review	
2	9/2,9/4	Reading day-no class	In class review of GAO report	1
3	9/9,9/11	In class review of GAO report	Reading day-no class	
4	9/16,9/18	In class review of DOE approach	Reading day-no class	2
5	9/23,9/25	Compare GAO and DOE	Discussion about challenges and opportunities of working in team	
6	9/30,10/2	Reading day-no class	Reading day-no class	3
7	10/7,10/9	Citation and reference	Library session	
8	10/14,10/16	No class– Fall break	Reading day-no class	
9	10/21,10/23	Progress report day - Individual team meetings	Research day - No class	Proposal due
10	10/28,10/30	Progress report day - Individual team meetings	Research day - No class	
11	11/4,11/6	Progress report day - Individual team meetings	Research day - No class	
12	11/11,11/13	Progress report day - Individual team meetings	Research day - No class	
13	11/18,11/20	Progress report day - Individual team meetings	Research day - No class	
14	11/25,/11/27	Progress report day - Individual team meetings	No class – Thanksgiving	
15	12/2,12/4	Presentation Day 1	Presentation Day 2	
16	12/15			Paper due

**Assignments:** There are four (4) required assignments throughout the semester, worth a total of 40% of your grade (10%/10 points each). These assignments must be submitted by the start of class (10AM) on the due date. Assignments must be uploaded to Blackboard.

- HW1: GAO Summary -- Prepare a 2-page summary of the GAO reading (no more than 2 pages). Your summary – in your own words – must make clear that you have read the document (e.g. the summary must include components of the beginning, middle, and end of the technology assessment, and especially must be sure to summarize the findings, recommendations, and conclusions). Due 9/4/19.
- HW2: DOE Summary -- Prepare a 2-page summary of the DOE reading (no more than 2 pages). Choose one chapter to present to the class. Use the reading day (see schedule) or your own time to discuss the technologies and determine what you will share. Be sure to discuss the methods used to undertake the assessment as well as the findings. Due 9/18/19.
- HW3: Team strategy -- Review the document posted on Blackboard for this assignment and formulate responses about challenges and opportunities of working in teams and how you will handle problems that may arise. Due 10/2/19.
- HW4: Project proposal -- Prepare a one-page group project proposal to show what technological topic you plan to do, briefly explain why this topic, include a list of your team members. Due

10/23/19.

**Project:** The final project is the main component of the course, worth 50% of your final grade, and students will be given ample class time throughout the semester to complete a successful project with their team (4-5 members in each team). We will spend time as a class brainstorming suitable project topics. Instead of choosing a team or being assigned to a team by the professor, students will choose the topic that most interests them; this should help to pair students with others who also have a strong interest in the chosen technology so that all members of a team are equally motivated and invested in completing a successful project. The final project consists of a report (one assessment report per group; each assessment should be 10-15 pages long, due 12/15/19), and a class presentation (15minutes + 5minutes Q&A). The written report should be a high quality, well-organized, professional research document with all references properly cited, etc. The presentations will take place during the last two sessions of class, and the assessment will be due on the last day of class. All final papers must be uploaded using Blackboard (one team member submits for the team).

***Student Accessibility Support Center Statement***

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, 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 Student Accessibility Support Center. For procedures and information go to the following website:

<http://www.stonybrook.edu/ehs/fire/disabilities>.

***Academy Integrity Statement***

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. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. 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](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

***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 University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.