Course Description
This course uses the emerging fields of nanoscience and nanotechnology to explore the complex relationship between society and technology. Studying scientific phenomena at very small scales has been a frequent practice for over a century but the recent emphasis on nanoscale research, design, and manufacturing has the potential to revolutionize almost all facets of human life. Many commentators have touted this new field as ‘the Next Industrial Revolution’. Nano researchers are now working in a diverse range of fields including manufacturing, medicine, materials science, military, environmental protection, and energy generation. While these applications have many potential benefits to society, they also have undetermined social, legal, and ethical implications. A small group of social scientists in the growing field of Science and Technology Studies (STS) are examining the non-technical aspects of nanotechnology. The course will use STS theories and case studies to explore the various implications of nanotechnology.

There are three main objectives for the course:

1) To serve as an introduction to the emerging practice of nanotechnology and the related scientific and public debates.
2) To develop a critical approach to examining the relationship between scientific development, technological development, and society.
3) To hone our communication skills in reading, writing, speaking, and multimedia.

Readings
There is one required book for the course, available at the UT Co-op and other booksellers:


Additional book chapters and articles will be posted on the UT Blackboard website (blackboard.utexas.edu) throughout the semester. A bibliography of the required readings is provided in the course schedule on the following pages. Readings are to be completed by the date they are listed unless specified otherwise.
Assignments and Grading
Course grades will be based on class participation, daily/weekly assignments, quizzes, and the class project. Brief descriptions of each assignment are provided below and more detailed descriptions will be provided throughout the semester. Unless specified otherwise, assignments are due at the beginning of class.

Class Participation (15%) – Each student will be graded on participation. Participation means that as a class member, you attend class regularly and come prepared to discuss the assigned readings. Missing two or three class periods is acceptable and will not impact your participation grade. Missing more than three class periods without permission from the instructor will be reflected in your participation grade.

Daily/Weekly Assignments (35%) – Each class member is expected to submit daily and weekly assignments that may include brainstorming ideas, short (400-600 words) essays, news articles, informal presentations, and so forth. These assignments are intended to demonstrate your understanding of the course readings and give you an opportunity for thoughtful reflection.

Quizzes (20%) – A quiz will be given at the end of each section of the course. Each quiz will consist of short-answer questions and address the readings and class content for one section of the course (i.e., they are not cumulative). Sample questions will be provided by the instructor before each quiz. Quizzes are closed book and closed notes.

Class Project (30%) – The class project will be a collective effort by all class members to develop a website with various forms of media (text, audio, video, images). Each student will be assigned to a particular role for the project (webmaster, graphic designer, content editor, etc.) and contribute individually and in small groups. Each student will maintain a working journal that includes his or her ideas and contributions to the project as well as hours devoted to the project. This project will be described in detail in the near future.

**Extra Credit (5%) – The UT Science, Technology and Society Department will host a civic forum on ‘Surveillance and You’ on Saturday, October 21 from 9 am to 2 pm. Students are not required to attend but will receive extra credit for volunteering at the event and writing a two-page critique. More details will be provided before the event.

Your final grade for the course will be determined using the following scale, based on the total points earned in the course:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>90.0 to 105.0%</td>
</tr>
<tr>
<td>B</td>
<td>Above average</td>
<td>80.0 to 89.9%</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>70.0 to 79.9%</td>
</tr>
<tr>
<td>D</td>
<td>Pass</td>
<td>60.0 to 69.9%</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>Below 60.0%</td>
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Students are welcome to check in with the instructor on a regular basis to inquire about their course performance.
Academic Conduct
All work that you submit for this course must be your own. Acts of plagiarism and other forms of cheating carry harsh penalties at UT and each student should take the issue of academic conduct very seriously. You are encouraged to study and discuss course material with class members but all assignments (unless otherwise directed) are to be written independently in your own words. When drawing information from another source, you must give credit by citing it as an endnote or footnote. Cheating on any assignments or quizzes will result in an F for the course. If you are unsure of what to do in a situation, ask the instructor. Further information on academic conduct can be found on the Blackboard website or in the UT General Information Catalog available from the Office of the Registrar (www.utexas.edu/student/registrar/).

Technology in the Classroom
Technology will be used on a regular basis in the classroom to facilitate discussions and illustrate concepts using multimedia. However, technology can also be a distraction if not used prudently. Laptop computers are allowed in the classroom but only for taking notes or referring to class materials. Surfing on the Web is not allowed unless it is for a specific class function. Cellular phones must be turned off or set to silent mode and text messaging is not allowed during class time.

Special Needs
Students with special learning requirements are encouraged to make arrangements with the instructor to accommodate their particular needs.
### INTRODUCTION

#### 8/30 Wed
- **Introduction**

#### 9/1 Fri
- **Why Study Nanotechnology?**

### THINKING ABOUT SCIENCE AND TECHNOLOGY

#### 9/4 Mon
- [No class – Labor Day]

#### 9/6 Wed
- **Scientific Revolution**

#### 9/8 Fri
- **The Rise of Industry**

#### 9/11 Mon
- **The Second Industrial Revolution**

#### 9/13 Wed
- **What is Technology?**

#### 9/15 Fri
- **The Allure of Technological Determinism**

#### 9/18 Mon
- **The Social Construction of Technology**

#### 9/20 Wed
- **Technological Momentum**
9/22 Fri  Business and Technological Development


9/25 Mon  Technology and Risk


9/27 Wed  Debating Technology: The GMO Controversy

9/29 Fri  QUIZ 1

NANOTECHNOLOGY PERSPECTIVES

10/2 Mon  How to Do Academic Research
-No readings-

10/4 Wed  The Historical Development of Nanotechnology


10/6 Fri  Revolution or Evolution?


10/9 Mon  Class Project Brainstorming
-No readings-
<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/16</td>
<td>Mon</td>
<td>U.S. Congressional Hearings [continued]</td>
<td>- No readings -</td>
</tr>
<tr>
<td>10/21</td>
<td>Sat</td>
<td><strong>EXTRA CREDIT</strong> Civic Forum: Surveillance and You</td>
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</table>
10/30 Mon  **Property Rights and the Law**  

11/1 Wed  **QUIZ 2**

11/3 Fri  [No class]

**NANOTECHNOLOGY APPLICATIONS AND FUTURES**

11/6 Mon  **Products in the Marketplace**  

11/8 Wed  **Guest Lecture**  
[Readings to be determined]

11/10 Fri  [No class]

11/13 Mon  **Nanomedicine**  

11/15 Wed  **Environmental Applications and Impacts, Part 1**  

11/17 Fri  **Environmental Applications and Impacts, Part 2**  

11/20 Mon  **Military Nanotechnologies**  
11/22 Wed  **National Security and Nanotechnology**

11/24 Fri  [No class – Thanksgiving Holiday]

11/27 Mon  **Technology as Progress?**

11/29 Wed  **Democratic Science and Technology Development**


12/1 Fri  **Ecological Utopias?**

12/4 Mon  **Considering the Societal Implications of Nanotechnology**

12/6 Wed  **Preparing Society for a Transformation**

12/8 Fri  **Conclusions**
-No readings-

**QUIZ 3** – during Final Exams Week, 12/13-19 (date to be announced)