# ANTH R116: SCIENCE, TECHNOLOGY, AND HUMAN VALUES

**Originator**
amelidonis

**College**
Oxnard College

**Discipline (CB01A)**
ANTH - Anthropology

**Course Number (CB01B)**
R116

**Course Title (CB02)**
Science, Technology, and Human Values

**Banner/Short Title**
Science/Tech/Human Values

**Credit Type**
Credit

**Start Term**
Fall 2021

**Co-listed (Same-as) Course(s)**
IDS R102

**Taxonomy of Programs (TOP) Code (CB03)**

2201.00 - Social Sciences, General

**SAM Priority Code (CB09)**

E - Non-Occupational

**Control Number**

CCC000556669

**Primary Minimum Qualification**

INTERDISCIPLINARY STUDIES

**Department**

Social Science General (2210)

**Division**

Oxnard Liberal Studies

**Catalog Course Description**
Science and technology have the potential to improve our lives, yet they also challenge the basic values of our humanity. Utilizing an interdisciplinary approach, this course explores the impact of science and technology on human culture, history, and understanding. Through critical engagement with scientific and social theory we explore how science and technology impact human cultures and values and we question what these developments mean for human societies in a global context. We explore topics such as global climate change, pollution, the nature of knowledge, science and gender, surveillance and security, nuclear energy, fracking, weapons of mass destruction, communications, the internet, hacking, genetic modification, space exploration, cosmology, cloning, artificial intelligence and medicine.

**Taxonomy of Programs (TOP) Code (CB03)**
2202.00 - Anthropology

**Course Credit Status (CB04)**
D (Credit - Degree Applicable)

**Course Transfer Status (CB05) (select one only)**
A (Transferable to both UC and CSU)

**Course Basic Skills Status (CB08)**
N - The Course is Not a Basic Skills Course

**SAM Priority Code (CB09)**
E - Non-Occupational

**Course Cooperative Work Experience Education Status (CB10)**
N - Is Not Part of a Cooperative Work Experience Education Program

**Course Classification Status (CB11)**
Y - Credit Course

**Educational Assistance Class Instruction (Approved Special Class) (CB13)**
N - The Course is Not an Approved Special Class

**Course Prior to Transfer Level (CB21)**
Y - Not Applicable

**Course Noncredit Category (CB22)**
Y - Credit Course

**Funding Agency Category (CB23)**
Y - Not Applicable (Funding Not Used)

**Course Program Status (CB24)**
1 - Program Applicable

**General Education Status (CB25)**
Y - Not Applicable

**Support Course Status (CB26)**
N - Course is not a support course

**Field trips**
May be required

**Grading method**
Letter Graded

**Does this course require an instructional materials fee?**
No

**Repeatable for Credit**
No

## Units and Hours

**Carnegie Unit Override**
No

## In-Class

**Lecture**
**Minimum Contact/In-Class Lecture Hours**
52.5
**Maximum Contact/In-Class Lecture Hours**
52.5

**Activity**

**Laboratory**

## Total in-Class

**Total in-Class**
**Total Minimum Contact/In-Class Hours**
52.5
**Total Maximum Contact/In-Class Hours**
52.5

## Outside-of-Class

**Internship/Cooperative Work Experience**

**Paid**

**Unpaid**

## Total Outside-of-Class

**Total Outside-of-Class**
**Minimum Outside-of-Class Hours**
105
**Maximum Outside-of-Class Hours**
105

## Total Student Learning

**Total Student Learning**
**Total Minimum Student Learning Hours**
157.5
**Total Maximum Student Learning Hours**
157.5

**Minimum Units (CB07)**
3
**Maximum Units (CB06)**
3

| Student Learning Outcomes (CSLOs) | |
|---|---|
| | **Upon satisfactory completion of the course, students will be able to:** |
| 1 | Students will apply an interdisciplinary perspective to the study of science and its impact on human culture and society researching, problem solving, generating new ideas, reading, comprehending, and interpreting various types of published ideas while avoiding bias. |
| 2 | Students will identify, describe and apply major theoretical approaches and key concepts in the interdisciplinary study of science and technology including the relationships between science, technology, culture, politics, and ethics. |

**Course Objectives**

|  | Upon satisfactory completion of the course, students will be able to: |
|---|---|
| 1 | Describe and define science and technology studies. |
| 2 | Identify the relationship among science, technology and human values and critically engage with this topic utilizing an interdisciplinary approach. |
| 3 | Identify how culture, politics, and human values both shape and are shaped by science and technology across time. |
| 4 | Identify significant scientific and technological developments and evaluate their impact on human societies, values and ethics. |
| 5 | Evaluate the historic and cultural role of science and technology in human societies. |

# Course Content

**Lecture/Course Content**

1. **Introduction**
   a. Introduce Science and Technology Studies utilizing an interdisciplinary perspective
   b. Define Science and Technology
   c. Define Human Values
2. **Historical Perspectives**
   a. The origins of science
   b. Explore the connections among science, technology and human values historically through the analysis of key moments in human history.
3. **Philosophy of Science**
   a. Is there a scientific method?
   b. How do we know?
   c. Reason, Rationality and Relativism
   d. Scientific Knowledge as Social Construction
   e. Actor-Network Theory
4. **Science, Technology and Power**
   a. The Control of Technology
   b. Surveillance and Security
   c. Evaluating Expertise: Who has the right to know?
5. **Gender and Science**
   a. Women in Science
   b. Androcentric Science
   c. Feminist critiques of scientific culture
6. **Human Values, New Technologies and a Rapidly Changing World**
   a. Genetics, Biomedicine, Bionics and Cloning
   b. Exploiting natural resources and pollution
   c. Communication, the internet, social media and hacking
   d. 3D Printing, Robotics and Manufacturing
   e. Augmented and Virtual Reality
   f. Artificial Intelligence and what it means to be human.
   g. Cyborgs, Robot Helpers and Human Care
   h. Megacities, Smart Homes, and Sky Cities
   i. Weapons of Mass Destruction- Nuclear, Biological, and Chemical Weapons
   j. Global Warming and Global Extinction Events
   k. Sustainability, Technology and the Green Revolution
   l. Space Exploration, Terraforming and Earth Alternatives
7. **Human Values and Ethics**
   a. Can we stop science and technological development and do we want to?
   b. How do we keep up with rapidly changing science technology?
   c. Economics, Politics and Scientific Progress
   d. What is the future of science, technology and human existence?

**Laboratory or Activity Content**

None

## Methods of Evaluation

**Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):**
Written expression

**Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):**
Essay exams
Essays
Group projects
Objective exams
Quizzes
Reports/papers
Research papers

## Instructional Methodology

**Specify the methods of instruction that may be employed in this course**
Audio-visual presentations
Computer-aided presentations
Collaborative group work
Class discussions
Distance Education
Demonstrations
Field trips
Group discussions
Instructor-guided interpretation and analysis
Instructor-guided use of technology
Lecture
Small group activities

**Describe specific examples of the methods the instructor will use:**
1. The instructor will lead discussions on topics that may include the philosophy and history of science, the scientific method, technological optimism and pessimism, ethics, epistemology, the impact on society of robotics, artificial intelligence, genetic engineering, energy and the environment, space exploration and colonization.
2. The instructor will utilize lectures, films, and internet materials to explore and critically analyze topics relevant to the understanding and application of science and technology studies.
3. Students will discuss topics relevant to the study of science and technology studies.

## Representative Course Assignments

### Writing Assignments
Short Papers on Science, Technology and Human Values
Term Papers such as select a specific technology and discuss how it is impacting human society and culture.
Write up of fieldtrips to science museums, technology fairs, etc.

### Critical Thinking Assignments
1. Participate in class, online and small group discussions regarding the philosophy of science, ethics, energy policy, the impact of genetic engineering, security and surveillance.
2. Students will complete short writing assignments exploring topics related to science and technology studies such as addressing the demarcation problem, trying to philosophically prove the difference between science, religion and pseudoscience.

### Reading Assignments
Weekly assignment of one or two chapters from the textbook

## Outside Assignments

### Representative Outside Assignments
1. Film viewing, documented by brief write-ups. Example: Watching a video clip on genetic engineering and discussing the ethical implications of such technologies.

2. Participating in online discussions related to the course materials for that particular week. Topics may include the philosophy of science, ethics, the impact of genetic engineering, how family robots will impact kinship and family, artificial intelligence, space exploration, colonization and the possibility of life on other moons and planets.

3. Research latest developments on science and technology utilizing web resources such as www.sciencemag.org or science.nasa.gov

## District General Education

## A. Natural Sciences

## B. Social and Behavioral Sciences

## C. Humanities

## D. Language and Rationality

## E. Health and Physical Education/Kinesiology

## F. Ethnic Studies/Gender Studies

## CSU GE-Breadth

## Area A: English Language Communication and Critical Thinking

## Area B: Scientific Inquiry and Quantitative Reasoning

## Area C: Arts and Humanities

## Area D: Social Sciences

## Area E: Lifelong Learning and Self-Development

## Area F: Ethnic Studies

## CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

## IGETC

## Area 1: English Communication

## Area 2A: Mathematical Concepts & Quantitative Reasoning

## Area 3: Arts and Humanities

## Area 4: Social and Behavioral Sciences

## Area 5: Physical and Biological Sciences

## Area 6: Languages Other than English (LOTE)

## Textbooks and Lab Manuals

**Resource Type**
Textbook

**Description**
Sergio Sismondo (2009). *An Introduction to Science and Technology Studies* (2nd). New York Wiley Blackwell (Latest Edition). 1405187654

**Resource Type**
Textbook

**Description**

Thomas Kuhn (2012). *The Structure of Scientific Revolutions* (50th Anniversary). Chicago (Classic Text) University of Chicago. 0226458121

**Resource Type**

Textbook

**Description**

Hackett, E., Arnsterdamska, O., (2016). *The Handbook of Science and Technology Studies* (3rd). Boston MIT Press (Latest Editiion). 0262083647

## Distance Education Addendum

## Definitions

**Distance Education Modalities**

Hybrid (51%–99% online)
Hybrid (1%–50% online)
100% online

## Faculty Certifications

**Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.**

Yes

**Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.**

Yes

## Regular Effective/Substantive Contact

**Hybrid (1%–50% online) Modality:**

| Method of Instruction | Document typical activities or assignments for each method of instruction |
| --- | --- |
| Asynchronous Dialog (e.g., discussion board) | Students will post on discussion board topics such as the ethical implications of security and surveillance technologies. |
| E-mail | Faculty will communicate with students via email regarding course information and concerns. |
| Other DE (e.g., recorded lectures) | Faculty may record video lectures on the course content including videos on the philosophy of science, ethics, security and surveillance, robotics, AI, energy and the environment, space exploration and colonization. |
| Video Conferencing | Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content. |

**Hybrid (51%–99% online) Modality:**

| Method of Instruction | Document typical activities or assignments for each method of instruction |
| --- | --- |
| Asynchronous Dialog (e.g., discussion board) | Students will post on discussion board topics such as the ethical implications of security and surveillance technologies. |
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| Video Conferencing | Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content. |

**100% online Modality:**

| Method of Instruction | Document typical activities or assignments for each method of instruction |
| --- | --- |
| Asynchronous Dialog (e.g., discussion board) | Students will post on discussion board topics such as the ethical implications of security and surveillance technologies. |
| E-mail | Faculty will communicate with students via email regarding course information and concerns. |
| Other DE (e.g., recorded lectures) | Faculty may record video lectures on the course content including videos on the philosophy of science, ethics, security and surveillance, robotics, AI, energy and the environment, space exploration and colonization. |
| Video Conferencing | Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content. |

## Examinations

**Hybrid (1%–50% online) Modality**
Online
On campus

**Hybrid (51%–99% online) Modality**
Online
On campus

**Primary Minimum Qualification**
ANTHROPOLOGY

## Review and Approval Dates

**Department Chair**
08/23/2020

**Dean**
08/24/2020

**Technical Review**
09/09/2020

**Curriculum Committee**
09/09/2020

**DTRW-I**
MM/DD/YYYY

**Curriculum Committee**
11/25/2020

**Board**
MM/DD/YYYY

**CCCCO**
MM/DD/YYYY

**Control Number**
CCC000553331

**DOE/accreditation approval date**
MM/DD/YYYY