

CSED-790/903: Impacts and Ethics of Computing

Independent Study Online Course Syllabus

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Number of Graduate Semester Units: 4
Target Audience: 6th - 14th grade teachers
Course Access: ce-connect.fresno.edu

Course Description

This course is designed to provide educators with a foundational background on the impact and ethics of computing. Through this course, the student will enter debates regarding the pace and impact of various technological innovations in biotechnologies, aerospace, robotics, artificial intelligence, and machine learning. Students will learn and compare a broad range of ethical frameworks, assessing their application to privacy, security, automation, artificial intelligence, and codes of ethics—especially as these apply to their own teaching and learning contexts.

Note: Required books and movies must be acquired separately.

Required Texts and Course Materials

Books:

- Sheila Jasanoff. *The Ethics of Invention: Technology and the Human Future* (New York, NY: W. W. Norton & Company, 2016). ISBN: 978-0393078992 <https://www.amazon.com/Ethics-Invention-Technology-Human-Future/dp/039307899X>
- Steve Wilkens. *Beyond Bumper Sticker Ethics: An Introduction to Theories of Right and Wrong* (Downers Grove, IL: IVP Academic, 2011). ISBN: 978-0830839360 <https://www.amazon.com/Beyond-Bumper-Sticker-Ethics-Introduction/dp/0830839364>

Movies: Students will be required to watch relevant sci-fi movies and analyze them as part of the course. Abundant care has been taken to accommodate different preferences for movies with various content ratings, so students who wish not to avoid rated-R content can choose PG-13 or below. Costs for renting or purchasing these movies must be acquired separately.

Note: Students are responsible for purchasing their own textbook, analyzing the content, and applying what they learned to the course assignments. You are welcome to purchase used, e-book, or new versions to save money. You can order the book directly from the publisher or from one of several discount aggregators (for example): <https://amazon.com>

Online Resources: Relevant online resources that support the course content and encourage further investigation will be available throughout the course assignments. Active hyperlinks are

utilized throughout the course and will link to the appropriate information when clicked. These include videos, podcasts, worksheets, online activities, journal articles and other resources.

Moodle: Moodle is a web-based learning management system used to support flexible teaching and learning in both face-to-face and distance courses (e-learning).

<https://moodle.org> // <https://moodle.org/demo> // <https://docs.moodle.org>

Course Dates

Self-paced; students may enroll at any time and take up to one year, from the date of registration, to complete assignments. Students may complete assignments in no less than three weeks for a 3-unit course (one week per unit).

National Standards Addressed in This Course

National Board for Professional Teaching Standards (NBPTS)

(<http://www.nbpts.org/standards-five-core-propositions/>)

First published in 1989 and updated in 2016, [*What Teachers Should Know and Be Able to Do*](#) articulates the National Board's Five Core Propositions for teaching. The Five Core Propositions - comparable to medicine's Hippocratic Oath — set forth the profession's vision for accomplished teaching. Together, the propositions form the basis of all National Board Standards and the foundation for National Board Certification. Course assignments have been designed so students can demonstrate excellence against these professional teaching standards whenever possible.

- Proposition 1: Teachers are committed to students and their learning
- Proposition 2: Teachers know the subject they teach and how to teach those subjects to students
- Proposition 3: Teachers are responsible for managing and monitoring student learning
- Proposition 4: Teachers think systematically about their practice and learn from experience
- Proposition 5: Teachers are members of learning communities

International Society for Technology in Education (ISTE) (<http://www.iste.org/standards/ISTE-standards/standards-for-teachers>)

Building on the NETS for Students, the ISTE NETS for Teachers (NETS•T), which focus on pre-service teacher education, define the fundamental concepts, knowledge, skills, and attitudes for applying technology in educational settings. The standards and the performance indicators also provide guidelines for teachers currently in the classroom.

Continuing Education Student Learning Outcomes (CE-SLO)

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| CE-SLO 1 | Demonstrate proficient written communication by articulating a clear focus, synthesizing arguments, and utilizing standard formats in order to inform and persuade others, and present information applicable to targeted use. |
| CE-SLO 2 | Demonstrate comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts. |

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| CE-SLO 3 | Reflect on their personal and professional growth and provide evidence of how such reflection is utilized to manage personal and professional improvement. |
| CE-SLO 4 | Apply critical thinking competencies by generating probing questions, recognizing underlying assumptions, interpreting and evaluating relevant information, and applying their understandings to the professional setting. |
| CE-SLO 5 | Reflect on values that inspire high standards of professional and ethical behavior as they pursue excellence in applying new learning to their chosen field. |
| CE-SLO 6 | Identify information needed in order to fully understand a topic or task, organize that information, identify the best sources of information for a given enquiry, locate and critically evaluate sources, and accurately and effectively share that information. |

Course Student Learning Outcomes (C-SLO)

| Student Learning Outcomes for This Course By the end of this course student will be able to: | | National Standards Addressed* | CE-SLO Addressed** |
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| C-SLO 1 | Empathize with the unique challenges humans face with the parabolic pace and disruption of technological innovation. | NBPTS 1 | CE-SLO 2, 3 |
| C-SLO 2 | Compare a broad range of ethical frameworks, assessing their application to privacy, security, automation, artificial intelligence, and codes of ethics. | NBPTS 2,3,4 | CE-SLO 2, 4 |
| C-SLO 3 | Identify ethical frameworks in various computational models and programs. | NBPTS 2,4 | CE-SLO 2 |
| C-SLO 4 | Develop metrics for evaluating whether individual and communal human flourishing is at the center of any given technology. | NBPTS 1,3 | CE-SLO 2, 4 |
| C-SLO 5 | Demonstrate awareness of marginalized end-users on the other side of computing models and systems, with attention to biblical principles of diversity and inclusion. | NBPTS 1,2,3,4 | CE-SLO 1, 2, 4 |
| C-SLO 6 | Make use of an integrated biblical and ethical framework aimed at individual and communal human flourishing in the selection, evaluation, or implementation of a particular educational technology for one's own teaching context. | NBPTS 1,2,3,4 | CE-SLO 1, 2, 4 |

* Please refer to the section on **National Standards Addressed in This Course**

** Please refer to the section on **Continuing Education Student Learning Outcomes**

Topics, Assignments, and Activities

| Module Title | Module Assignments and Activities | Points Possible for Each Assignment |
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| Welcome Module | <ul style="list-style-type: none"> • Welcome Video • Course Syllabus • Introduce Yourself Forum • Read “The Power of Technology”, a Chapter in <i>The Ethics of Invention</i>, pp. 1-30. | |
| Module 1 - Ethics Overview & Cultural Relativism | <ul style="list-style-type: none"> • Read Jasanoff, “Risk & Responsibility”, pp. 31-58. • Read Wilkens, “When in Rome, Do as the Romans Do: Cultural Relativism”, pp. 28-42. • 1.1 Reflection Journal: Movie “I Am Human” (Documentary) • 1.2 Activity: Rediscovering Moral Knowledge • 1.3 Module Quiz • 1.4 Choice: Choose an Ethical Computing Concern for Your Context | <p>10 points</p> <p>10 points</p> <p>20 points</p> <p>10 points</p> |
| Module 2 - Technology as Servant | <ul style="list-style-type: none"> • Read Jasanoff, “The Ethical Anatomy of Disasters”, pp. 59-86. • Read Wilkens, “Looking Out for Number One: Ethical Egoism”, pp. 43-58. • Read Wilkens, “I Couldn’t Help Myself: Behaviorism”, pp. 59-76. • 2.1 Module Quiz • 2.2 Ethical Analysis: “Avatar (2009); PG-13” • 2.3 Assignment: Precis on Additional Resource • 2.4 Putting It Together: Musings on Your Ethical Computing Concern | <p>20 points</p> <p>10 points</p> <p>20 points</p> <p>10 points</p> |
| Module 3 - Humanity as Slave | <ul style="list-style-type: none"> • Read Jasanoff, “Tinkering With Humans”, pp. 116-146. • Read Wilkens, “Survival of the (Ethical) Fittest: Evolutionary Ethics”, pp. 77-96. • Read Wilkens, “The Greatest Happiness: Utilitarianism”, pp. 97-112. • 3.1 Module Quiz • 3.2 Ethical Analysis: “Slaughterbots” (Documentary), “Gattaca (1987); PG-13, “Terminator (1984); R”, “The Matrix (1999); R” • 3.3 Activity: Biology & Theology on “Deeply” Human • 3.4 Putting It Together: Investigating Your Ethical Computing Concern | <p>20 points</p> <p>20 points</p> <p>10 points</p> <p>30 points</p> |
| Module 4 - Human Flourishing | <ul style="list-style-type: none"> • Read Jasanoff, “Whose Knowledge, Whose Property?”, pp. 177-210. • Read Wilkens, “It’s Your Duty: Kantian Ethics”, pp. 113-128. • Read Wilkens, “Be Good: Virtue Ethics”, pp. 129-146. • 4.1 Module Quiz • 4.2 Ethical Analysis: “Minority Report (2002); PG-13”, | <p>20 points</p> <p>20 points</p> |

| Module Title | Module Assignments and Activities | Points Possible for Each Assignment |
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| | “Lost in Translation (2003); R”, “Second Skin” (Documentary 2008) <ul style="list-style-type: none"> • 4.3 Activity: Individual and Communal Dimensions of “Human” • 4.4 Putting It Together: Proposal for Your Ethical Computing Concern | 10 points 40 points |
| Module 5 - Humanity as Superhuman | <ul style="list-style-type: none"> • Read Wilkens, “All You Need is Love”, pp. 164-177. • Read Wilkens, “Doing What Comes Naturally: Natural Law Ethics”, pp. 77-96. • Read Wilkens, “God Said It, I Believe It, That Settles It: Divine Command Theory”, pp. 196-212. • 5.1 Module Quiz • 5.2 Ethical Analysis: “Eyesight” (Documentary), “Neuralink” • 5.3 Assignment: Precis on Additional Resource • 5.4 Putting It Together: 1st Draft of Final Project | 20 points 20 points 30 points 20 points |
| Module 6 - Ethical Horizons for the Future | <ul style="list-style-type: none"> • Read Jasanoff, “Reclaiming the Future”, pp. 211-245. • Read Jasanoff, “Invention for the People”, pp. 246-268. • 6.1 Ethical Analysis: “Wall-E” (2008); G. • 6.2 Final Exam • 6.3 Putting It Together: Final Project | 20 points 60 points 150 points |
| Course Wrap-up – Grading and Evaluation | <ul style="list-style-type: none"> • Final Reflection Forum • Course Evaluation • Course Completion Checklist • Grade Request / Transcript Request | |
| | TOTAL POINTS | 600 points |

Grading Policies, Rubrics, and Requirements for Assignments

Grading Policies

- Assignments will be graded per criteria presented in the course rubrics.
- The discernment between letter grades is at the discretion of the instructor based on the quality of work submitted (see appropriate course rubric).
- All assignments must be completed to receive a grade and are expected to reflect the quality that teacher-training institutions require of professional educators. If completed assignments do not meet this standard, students will be notified with further instructions from the instructor.

Grading Rubrics (for CSED-790)

| Grade | Percent | Description | Rubric |
|-------|------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | 92.0-100% | Outstanding | Outstanding in every way. Meets all course / assignment requirements with significant evidence of subject mastery and demonstration of outstanding graduate level scholarship. |
| A - | 90.0-91.9% | Outstanding - | |

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| B + B B - | 88.0-89.9% 82.0-87.9% 80.0-81.9% | Good + Good Good - | Meets criteria for all course/assignment requirements - demonstrates subject competency with good graduate level scholarship. |
| C + C C - | 78.0-79.9% 72.0-77.9% 70.0-71.9% | Marginal + Marginal Marginal - | Marginally meets criteria for all course/assignment requirements - demonstrates marginal graduate level scholarship. |
| F | Below 70.0% | Unsatisfactory | Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of satisfactory graduate level scholarship. |

Grading Rubrics (for CSED-903)

| Grade | Percent | Description | Rubric |
|-------|-------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | 90.0-100% | Outstanding | Outstanding in every way. Meets all course / assignment requirements with significant evidence of subject mastery and demonstration of outstanding graduate level scholarship. |
| B | 80.0-89.9% | Good | Meets criteria for all course/assignment requirements - demonstrates subject competency with good graduate level scholarship. |
| N/C | Below 80.0% | Unsatisfactory | Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of satisfactory graduate level scholarship. |

Writing Requirements

- **Superior:** Writing is clear, succinct, and reflects graduate level expectations. Clearly addresses all parts of the writing task. Maintains a consistent point of view and organizational structure. Includes relevant facts, details, and explanations.
- **Standard:** Writing is acceptable with very few mistakes in grammar and spelling. Addresses most parts of the writing task. Maintains a mostly consistent point of view and organizational structure. Includes mostly relevant facts, details, and explanations.
- **Sub-standard:** Writing contains noticeable mistakes in grammar and spelling. Does not address all parts of the writing task. Lacks a consistent point of view and organizational structure. May include marginally relevant facts, details, and explanations.

Lesson Plan Requirements

- **Superior:** Instructional goals and objectives clearly stated. Instructional strategies appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is clearly delineated and authentic. All materials necessary for student and teacher to complete lesson clearly listed.
- **Standard:** Instructional goals and objectives are stated but are not easy to understand. Some instructional strategies are appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is present. Most materials necessary for student and teacher to complete lesson are listed.
- **Sub-standard:** Instructional goals and objectives are not stated. Learners cannot tell what is expected of them. Instructional strategies are missing or strategies used are inappropriate.

Method for assessing student learning and evaluating instruction is missing. Materials necessary for student and teacher to complete lesson are missing.

Instructor/Student Contact Information

Throughout the course participants will be communicating with the instructor and their classmates on a regular basis using asynchronous discussion forums. Students are provided with instructor contact information in the event they want to make email or phone contact. In addition, students are encouraged to email or phone the instructor at any time. Students will also receive feedback on the required assignments as they are submitted.

Forums

Participation is an important expectation of this course and all online courses. Online forums promote reflection and analysis while allowing students to appreciate and evaluate positions that others express. While students may not be engaging with the same students throughout this course they will be expected to offer comments, questions, and replies to the discussion question whenever possible. The faculty role in the discussion forum is that of an observer and facilitator.

Coursework Hours

Based on the Carnegie Unit standard, a unit of graduate credit measures academic credit based on the number of hours the student is engaged in learning. This includes all time spent on the course: reading the textbook, watching videos, listening to audio lessons, researching topics, writing papers, creating projects, developing lesson plans, posting to discussion boards, etc. Coursework offered for FPU graduate credit adheres to 60 hours per semester unit for the 700-level courses and 45 hours per semester unit for the 900-level courses. Therefore, a student will spend approximately 180 hours (700-level) or 135 hours (900-level) for a typical 3-unit course.

Services for Students with Disabilities

Students with disabilities are eligible for reasonable accommodations in their academic work in all classes. In order to receive assistance, the student with a disability must provide the Academic Support Center with documentation, which describes the specific disability. The documentation must be from a qualified professional in the area of the disability (i.e. psychologist, physician or educational diagnostician). Students with disabilities should contact the Academic Support Center to discuss academic and other needs as soon as they are diagnosed with a disability. Once documentation is on file, arrangements for reasonable accommodations can be made. For more information and for downloadable forms, please go to <https://www.fresno.edu/students/academic-support/services-students-disabilities>.

Plagiarism and Academic Honesty

All people participating in the educational process at Fresno Pacific University are expected to pursue honesty and integrity in all aspects of their academic work. Academic dishonesty, including plagiarism, will be handled per the procedures set forth in the Fresno Pacific University Catalogue - <https://www.fresno.edu/students/registrars-office/academic-catalogs>

Technology Requirements

To successfully complete the course requirements, course participants will need Internet access, can send and receive email, know how to manage simple files in a word processing program, and have a basic understanding of the Internet. Please remember that the instructor is not able to offer technical support. If you need technical support, please contact your Internet Service Provider.

Moodle: This course will be delivered totally online. Moodle is a learning management system that provides students access to online resources, documents, graded assignments, quizzes, discussion forums, etc. Moodle is easy to learn and has a friendly user interface. To learn more about Moodle, go to https://docs.moodle.org/33/en/Student_FAQ. There are also some student tutorials on the Center for Online Learning website at Fresno Pacific University - <https://col.fresno.edu/student>.

Moodle Site Login and Passwords: Students will need to have internet access to log onto <https://ce-connect.fresno.edu>. The username and password numbers for Moodle access will be sent to you by the university using the email address you submitted at the time of registration. The instructor will then contact you with a welcome communication. If you need help with your username and password recovery, please contact the Continuing Education office at (800) 372-5505 or (559) 453-2000 during regular office hours - Mon-Fri 8:00 am to 5:00 pm. or email them at prof.dev@fresno.edu.

Getting Help with Moodle: If you need help with Moodle, please contact the Center for Online Learning (COL), by telephone or the website. Help by phone (559) 453-3460 is available Mon-Thurs 8:00 am to 8:00 pm and on Fridays from 8:00 am to 5:00 pm, or by filling out a “Request Services” form at <https://col.fresno.edu/contact/request-services>. Please identify that you are with the “School = Continuing Education”.

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to logon to the Continuing Education website (<https://ce.fresno.edu/my-account>) and “Request Final Grade”. Once the instructor receives the requests and submits the grade online, students may log back in to view their Final Grade Report or order transcripts online. Please allow at least two weeks for the final grade to be posted. For more information, see the Continuing Education Policies and Procedures at <https://ce.fresno.edu/ce-policies-and-procedures>.

University Policies and Procedures

Students are responsible for becoming familiar with the information presented in the Academic Catalog and for knowing and observing all policies and procedures related to their participation in the university community. A summary of university policies may be found on the university website at <https://www.fresno.edu/students/registrars-office/academic-catalogs>.

Fresno Pacific University Student Learning Outcomes (FPU-SLO)

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| FPU-SLO 1 | Student Learning Outcomes Oral Communication: Students will <i>exhibit</i> clear, engaging, and confident oral communication – in both individual and group settings – and will critically <i>evaluate</i> content and delivery components. |
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| FPU-SLO 2 | Written Communication: Students will <i>demonstrate</i> proficient written communication by <i>articulating</i> a clear focus, <i>synthesizing</i> arguments, and utilizing standard formats in order to <i>inform</i> and <i>persuade</i> others. |
| FPU-SLO 3 | Content Knowledge: Students will <i>demonstrate</i> comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts. |
| FPU-SLO 4 | Reflection: Students will <i>reflect</i> on their personal and professional growth and <i>provide evidence</i> of how such reflection is utilized to manage personal and vocational improvement. |
| FPU-SLO 5 | Critical Thinking: Students will <i>apply</i> critical thinking competencies by <i>generating</i> probing questions, <i>recognizing</i> underlying assumptions, <i>interpreting</i> and <i>evaluating</i> relevant information, and <i>applying</i> their understandings to new situations. |
| FPU-SLO 6 | Moral Reasoning: Students will <i>identify</i> and <i>apply</i> moral reasoning and ethical decision-making skills, and <i>articulate</i> the norms and principles underlying a Christian world-view. |
| FPU-SLO 7 | Service: Students will <i>demonstrate</i> service and reconciliation as a way of leadership. |
| FPU-SLO 8 | Cultural and Global Perspective: Students will <i>identify</i> personal, cultural, and global perspectives and will employ these perspectives to <i>evaluate</i> complex systems. |
| FPU-SLO 9 | Quantitative Reasoning: Students will accurately <i>compute</i> calculations and symbolic operations and <i>explain</i> their use in a field of study. |
| FPU-SLO 10 | Information Literacy: Students will <i>identify</i> information needed in order to fully understand a topic or task, <i>explain</i> how that information is organized, <i>identify</i> the best sources of information for a given enquiry, <i>locate</i> and critically <i>evaluate</i> sources, and accurately and effectively <i>share</i> that information. |