

CSED-790/903: Impacts and Ethics of Computing

Independent Study Online Course Syllabus

Instructor: Rich Kriegbaum, PhD
Phone: (559) 283-2915
Email: richard.kriegbaum@fresno.edu

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

Course Description

Explore the ethical dimensions of artificial intelligence, data privacy, and technological innovation in education. This course examines how AI, surveillance technology, and digital tools impact human flourishing in educational settings. Learn to evaluate educational technology through ethical frameworks while addressing crucial questions about student privacy, AI in learning, digital well-being, and technological boundaries. Designed for K-14 educators, the course provides practical strategies for navigating emerging technologies like artificial intelligence, learning analytics, and digital assessment tools. Develop a framework for making informed decisions about technology integration while protecting student privacy and promoting authentic human connection in educational environments.

Course Introduction

Technology brings speed and convenience at scale. Manual data entry has been replaced with automated entry. Robots now work the warehouses and assembly lines. Algorithms now identify our faces. Smartphones and satellites now track everyone's movements. Anything a human can do repetitively, a robotic system can do better, faster, more accurately, and without complaining. Artificial intelligence and machine learning can recognize patterns in human and computer languages, introducing new possibilities. Students can now use algorithms to write papers, feign originality, and earn a degree without any discernment or understanding. Teachers can use artificial intelligence to design curriculum and deliver content for their lesson plans without being actively involved in the curation and teaching of their students. The future will bring artificially intelligent learning management systems capable of facilitating an online course without students knowing the entire experience of graded feedback and engagement with their "instructor" was nothing more than ones and zeroes running through a computer chip!

When we look at the impacts and ethics of computing, we consider how good and evil can be done *at scale*. One bad software update to a self-driving car can result in thousands of deaths. One missing semi-colon or conditional statement in software code for an autonomous military missile defense system can result in a false positive that inadvertently shoots down your country's own aircraft. What's more, companies with the patents and first-mover advantage can profit at scale, with unbelievable power to consolidate massive details of personal data to influence elections and monopolize industries.

What are we to make of this fast-approaching world?! What should our attitudes and dispositions be? What is our mission? Our shared objective when it comes to the invention and application of computing? The thesis of this course is that the best technologies are those that help us become more human. To that end, the most important question we will focus on in this course is what it means to be human, *deeply* human. To that end, we will explore ethical frameworks from the history of philosophy in writers such as Aristotle, Augustine, John Stuart Mill, Jeremy Bentham, Immanuel Kant, and Thomas Aquinas, among others. We will engage contemporary pioneers in biotechnologies, aerospace, robotics, artificial intelligence, and machine learning.

Note: Required books 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>

Recommended Additional Resources (Optional):

- Terrell Ward Bynum and Simon Rogerson. *Computer Ethics and Professional Responsibility*. 1st Edition (Malden, MA: Blackwell Publishing, 2004). [ISBN: 978-1855548459](https://www.amazon.com/Computer-Ethics-and-Professional-Responsibility/dp/1405144440)
- Sara Baase and Timothy Henry *Gift of Fire, A: Social, Legal, and Ethical Issues for Computing Technology* (Pearson, 2017). [ISBN: 978-0134615271](https://www.amazon.com/Gift-of-Fire-A-Social-Legal-and-Ethical-Issues-for-Computing-Technology/dp/0205144440)
- Markus Dubber, Sunit Das, and Frank Pasquale. Editors. *The Oxford Handbook of Ethics of AI* (Oxford University Press, 2021). [ISBN: 978-0197601440](https://www.amazon.com/Oxford-Handbook-of-Ethics-of-AI/dp/0190144440)
- Louise Amoore. *Cloud Ethics: Algorithms and the Attributes of Ourselves and Others* (Durham and London, Duke University Press Books, 2020) [ISBN: 978-1478008316](https://www.amazon.com/Cloud-Ethics-Algorithms-and-the-Attributes-of-Ourselves-and-Others/dp/0820344440)
- Robert N. Barger. *Computer Ethics: A Case-Based Approach*. 1st Edition (Cambridge University Press, 2008). [ISBN: 978-0521882514](https://www.amazon.com/Computer-Ethics-A-Case-Based-Approach/dp/0521882514)
- *Virtual Reality, Augmented Reality and Artificial Intelligence in Special Education: A Practical Guide to Supporting Students with Learning Differences*. 1st Edition (Routledge, 2019). [ISBN: 978-0367024536](https://www.amazon.com/Virtual-Reality-Augmented-Reality-and-Artificial-Intelligence-in-Special-Education-A-Practical-Guide-to-Supporting-Students-with-Learning-Differences/dp/0810844440)
- Meredith Broussard. *Artificial Unintelligence: How Computers Misunderstand the World* (The MIT Press, 2019). [ISBN: 978-0262537018](https://www.amazon.com/Artificial-Unintelligence-How-Computers-Misunderstand-the-World/dp/0262537018)
- Shoshana Zuboff. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (PublicAffairs, 2020). [ISBN: 978-1541758001](https://www.amazon.com/The-Age-of-Surveillance-Capitalism-The-Fight-for-a-Human-Future-at-the-New-Frontier-of-Power/dp/1616199011).

Canvas: This course will be delivered totally online. Canvas is a web-based learning management system (LMS) that provides students access to online resources, documents, videos, assignments, quizzes, forums, etc. Canvas is easy to learn and has a user-friendly interface.

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.

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)

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.
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**
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
Home Page	- Welcome Video - Course Syllabus - Policies and Procedures - Introduce Yourself Forum	
Module 1 - Moral Knowledge & Being Human	Read Jasanoff, "The Power of Technology", a Chapter in <i>The Ethics of Invention</i> , pp. 1-30. Read Wilkens, "Doing What Comes Naturally: Natural Law Ethics", pp. 178-195. Read Wilkens, "The Greatest Happiness: Utilitarianism", pp. 97-112. 1.0 Required Reading Quiz 1.1 Moral Knowledge Activity Quiz 1.2 "Is" versus "Ought" Quiz 1.3 Primary Ethical Concerns Reflection Paper 1.4 "I Am Human" Documentary Reflection	40 points 30 points 20 points 20 points 15 points
Module 2 - Artificial Presence & Human Intimacy	Read Jasanoff, "Risk & Responsibility", pp. 31-58. Read Wilkens, "When in Rome, Do as the Romans Do: Cultural Relativism", pp. 28-42. Read Wilkens, "All You Need is Love", pp. 164-177. 2.0 Required Reading Quiz 2.1 Ethical Framework Discussion Forum 2.2 Cultural vs. Moral Relativism Screencast 2.3 Beyond "Safe and Responsible" Ethical Frameworks 2.4 "Avatar" Movie Reflection 2.5 Human Presence Video Recording	40 points 20 points 20 points 20 points 15 points 20 points
Module 3 - Suffocating Surveillance & Human Freedom	Read Jasanoff, "Whose Knowledge, Whose Property?", pp. 177-210, pp. 177-210. Read Wilkens, "Looking Out for Number One: Ethical Egoism", pp. 43-58. Read Wilkens, "Be Good: Virtue Ethics", pp. 129-146. 3.0 Required Reading Quiz 3.1 Ethical Framework Sources Discussion 3.2 "The AI Dilemma" Video Response 3.3 Movie Reflection: Surveillance Narratives 3.4 Digital Privacy Curation Activity 3.5 Mid-Course Report Video*	40 points 15 points 20 points 20 points 20 points 20 points
Module 4 - Constant Distraction & Attention Health	Read Jasanoff, "Tinkering With Humans", pp. 116-146. Read Wilkens, "Survival of the (Ethical) Fittest: Evolutionary Ethics", pp. 77-96. Read Wilkens, "It's Your Duty: Kantian Ethics", pp. 113-128. 4.0 Required Reading Quiz 4.1 Biblical Frameworks Reflection Paper 4.2 Human Dignity Discussion Forum 4.3 Movie Reflection: Attention Impact 4.4 Attention Hijacking Discussion	40 points 20 points 15 points 20 points 15 points

Module Title	Module Assignments and Activities	Points Possible
Module 5 - Emotional Co-Dependency & Human Agency	Read Jasanoff, "Reclaiming the Future", pp. 211-245. Read Wilkens, "I Couldn't Help Myself: Behaviorism", pp. 59-76. 5.0 Required Reading Quiz 5.1 Christian Framework Discussion Forum 5.2 Movie Reflection: Emotional Co-Dependence 5.3 Technology and Human Agency Curation 5.4 Technology Impact Rubric Design*	40 points 15 points 20 points 15 points 60 points
Module 6 - The Dangers of "Scale" & Human Limits	Read Jasanoff, "The Ethical Anatomy of Disasters", pp. 59-86. Read Wilkens, "God Said It, I Believe It, That Settles It: Divine Command Theory", pp. 196-212. Read Jasanoff, "Invention for the People", pp. 246-268. 6.0 Required Reading Quiz 6.1 Christian Framework Reflection 6.2 Technological Disruption Discussion 6.3 Movie Reflection: Scale and Humanity 6.4 Impact and Ethics Technology Panel Preparation* 6.5 Final Course Report Video*	40 points 20 points 15 points 20 points 200 points 50 points
Course Wrap-up – Grading and Evaluation	• Final Reflection Forum • Course Evaluation • Course Completion Checklist • Grade Request / Transcript Request	
	TOTAL POINTS	1000 points

Grading Policies, Rubrics, and Requirements for Assignments

Grading Policies

- Assignments will be graded per criteria presented in the course rubrics.
- A = 90-100% and B = 80-89%, (anything below 80% will not receive credit.)
- The discernment between an A or a B letter grade is at the discretion of the instructor based on the quality of work submitted (see course rubrics).
- Coursework falling below a B grade will be returned with further instructions.
- 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

Grade	Percent	Description	Rubric
A	90-100%	Excellent	Meets all course / assignment requirements with significant evidence of subject mastery and demonstration of excellent graduate level professional development scholarship.
B	80-89%	Very Good	Adequately meets criteria for all course/assignment requirements - demonstrates subject competency with very good graduate level professional development scholarship.

NC	Below 80%	Unacceptable	Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of acceptable graduate level professional development scholarship.
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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 discussions 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 Continuing Education graduate credit adheres to 45 hours per semester unit for the 900-level courses. Therefore, a student will spend approximately 135 hours on 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). 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/departments/disability-access-education>.

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 and Handbook - <https://handbook.fresno.edu/graduate/academic-policies>

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.

Getting Help with Canvas: If you need help with Canvas, please contact the FPU Help Desk by phone: (559) 453-3410 or email: helpdesk@fresno.edu. Help is available Mon-Fri 8:00 am to 7:00 pm.

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to request their final grade by accessing the form at ce.fresno.edu/grade-request. Once the instructor receives the request and posts their final grade, students will receive an email communication from the University. Please allow at least two weeks for the final grade to be posted before you order your transcripts online.

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/departments/registrars-office/academic-catalogs>.

Fresno Pacific University Student Learning Outcomes (FPU-SLO)

FPU-SLO 1	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.
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 worldview.
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.