## Overview:
Welcome to CS 50! In this course we will consider **philosophical questions** about **information** and **computation**. What does it mean to say that we live in an “information society” and how did we get here? What is the nature of information? How can humanity avoid drowning in a sea of information? What impact does biblical teaching have on our view of information and computing? How does Christian faith impact personal and policy decisions related to information? How does computing impact privacy? Why are so few women and persons of color involved in the field of computing? In this course, we will address these questions and others.

## Current Catalog Description:
Social and ethical impacts of information, computation, and computing machinery from ancient Babylon to the present. Develop an historical perspective on information and computation. Comprehensive coverage of ethical theories and how they apply to technology – particularly information technologies – and how they can inform policy decisions. Significant attention to philosophical concepts of property rights, how they apply to information, and how they have been applied through history. Consideration of interactions and tensions between privacy and information infrastructure. **Prerequisites:** No background in computer science or philosophy is required.

## Proposed New Catalog Description:
*Introduction to the Christian liberal arts through philosophy and the social and ethical impacts of information and computation. Introduction to the discipline of philosophy from a computational perspective. Topics include: ethics, information and communication theory, epistemology, logic, and metaphysics. Philosophical exploration of the nature of information and computation, the relationship between information and knowledge, social impacts of technology, and faithful stewardship with respect to information and computation. Particular view to sound policy decisions regarding a specific information technology concern; topics vary by semester but examples include: copyright and ownership of information, privacy, professional ethics, and gender and ethnicity concerns in computing fields.**  
**Prerequisites:** No background in computer science or philosophy is required.

## Course Goals in Terms of General Education Learning Outcomes:
As the primary goal of the course, successful students will think like philosophers about information, computation, and how they interact – for better and worse – with the human race. More specifically, we want to equip students to make informed value judgments with respect to technology. In order to accomplish this, one must understand the nature of value and value judgments, how a Christian faith informs one’s value judgments, the nature of information and information technologies, and the impacts of technology on individuals and communities. This collection of concerns provides one exemplification of a Christian liberal arts education.

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1. Shaded areas represent elements that are common to all sections of the course
2. We are proposing a shortened title for the course
3. We are proposing an updated catalog description for the course
The course satisfies the General Education Common Contexts category, **Philosophical Reflections on Truth and Value**. The learning outcomes for courses meeting this requirement are:

1. **[Philosophy]** Students will be able to recognize and articulate foundational questions of philosophy—especially foundational questions of particular interest to Christians—though the emphasis among knowing, being, and value will vary by course.

2. **[Liberal Arts]** Students will be able to articulate some of the main components of a Christian liberal arts education and the interrelation of philosophy and other areas of academic study in the liberal arts, both in terms of content and the development and application of transferable skills.

3. **[Worldview]** Students will be able to articulate the relationship between philosophical commitments in academic life and their beliefs, feelings, commitments, and practices as components of an integral life, considered as a whole.

**Course Goals in Terms of Departmental and College Learning Outcomes:**

Traditionally, philosophically intensive courses offered within computer science departments address computer ethics. Indeed, many of the questions we want to consider in this course have received considerable attention in the literature of ethical theory. However, we will go beyond this looking at information theory and theories of knowledge, as well as social commentary on the impacts of (information) technology. Of course, by casting the net this wide, many of the topics will not be addressed in great depth. However, as a first- and second-year seminar, this breadth over depth is entirely appropriate. The shape of the course will be roughly split four ways between questions of being (metaphysics), questions of knowledge (epistemology), questions of value (ethics), and the consideration of a current issue (e.g., gender issues in computing).

In addition, students who successfully complete this course will understand the contemporary information society within a context of conceptual, technological, and ethical changes. Together, these goals enable students to think critically and reflectively on how a study of computer science interacts with other disciplines, society in general, and one's personal faith in particular (departmental outcome C4; college learning standards 1, 2, 4 and 6). In addition, the application of multiple ethical theories to given problems should support a student's ability to think flexibly and creatively (departmental outcome C3).

As a seminar course, a subsidiary goal is to give students practice reading critically, writing essays, making presentations to their peers, and discussing ideas vigorously. In short, students should become more critical thinkers and better communicators (department outcome C2).

**Required texts:**

**Additional readings will be assigned from:**

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1 A comparable introductory philosophy text may be used in other sections of the course.
| Class Sessions: | Class sessions will be held MWF 11:30am-12:35pm in TCL 4. Regular class attendance is essential for success in the class. Class sessions will include free-writes, discussion of questions from the readings, and presentations by class members. **Reading assignments** are to be done **before** the relevant class period. At the beginning of most class sessions, students will be asked to write the answer to a question based on the reading. These free-writes will form the basis for further class discussion. Each class session will be organized around several questions relating to the assigned readings. Students will maintain reading journals that record their thoughts, reactions and questions as they read. Students are expected to come to class prepared to discuss the primary questions and to present their own additional questions triggered by the reading. |
| Assignments: | Assignments include readings, reading journal, short essays, term paper, class presentations, and an online portfolio of work. Reading journals will be periodically evaluated. Students will write five one-page essays on assigned topics from the readings. Essays will be reviewed and critiqued by peers and then revised for final submission and grading. One term paper (2000-2500 words/4-5 pages single-spaced) will be written to provide a well-reasoned reply to the question, “What is the role of philosophy in a Christian liberal arts education with respect to understanding the nature of information and computation, how they interact with the human race, and how we make value judgments regarding them?” Students will create an online portfolio (or update one if they already have one) with relevant information from the course. Students are encouraged to submit their reading journals via their online portfolio. In addition, students will make one or more presentations to the class. |
| Exams: | Exams will include a midterm and a final, both of which will be in-class essay exams. |
| Online Materials: | Online materials, including assignments and other course information, are available on the Eureka course management system at [https://eureka.westmont.edu/](https://eureka.westmont.edu/). |
| Grades: | The final grade for the course will be calculated as follows: Class preparation, participation, and presentations: 30% Reading journal and online portfolio: 10% Short papers: 15% Midterm: 15% Research paper: 15% Final exam: 15% |
| Honesty: | Working together on assignments is encouraged. However, **copying** another student’s assignment (or portion of an assignment) is **not** allowed and will result in an F for the assignment. If you work together, you must include a note or comment indicating with whom you worked and on which part of your assignment. **Your**
Assignment should never be the same or essentially the same as someone else’s! Repeated or major violations will result in an F for the course.

“To plagiarize is to present someone else's work—his or her words, line of thought, or organizational structure—as our own. This occurs when sources are not cited properly, or when permission is not obtained from the original author to use his or her work. By not acknowledging the sources that are used in our work, we are wrongfully taking material that is not our own. Plagiarism is thus an insidious and disruptive form of dishonesty. It violates relationships with known classmates and professors, and it violates the legal rights of people we may never meet.

“Another person's ‘work’ can take many forms: printed or electronic copies of computer programs, musical compositions, drawings, paintings, oral presentations, papers, essays, articles or chapters, statistical data, tables or figures, etc. (The Learning Skills Centre, 1999). In short, if any information that can be considered the intellectual property of another is used without acknowledging the original source properly, this is plagiarism.” From Westmont College Plagiarism Policy, http://www.westmont.edu/_academics/pages/provost/curriculum/plagiarism/

Course Methodology

If we want to determine the best course of action – perhaps formulate a policy – regarding a given information technology, we need to understand our values and why we hold them. Philosophers in the area of ethics have been considering this and related questions for thousands of years. When we ask such questions about a new technology, say video or phone surveillance, we are stepping into a stream stretching back in history and engaging with what others have thought. Within the field of ethics, several theories have come to dominate our thinking and we want to study those theories, with the eventual goal to apply them to our specific problems with information and communication technology. However, before applying value judgments, one not only needs an ethical theory but also must understand the nature of the subject in question. Thus, students will also study the nature of information and computation.

An ethical theory cannot effectively guide behavior without an understanding of the topic about which we want to make choices. Exploring the nature of information and computation raises questions such as: What is information made of? Or is everything made of information? How is information communicated? Does information require a mind to behold it? If so, are minds anything other than information processors? These are some of the kinds of questions that philosophers ask about any subject when approaching the Philosophy of X. More specifically, these are questions of metaphysics (regarding the nature of “what is”) and epistemology (concerning knowledge and how we come to have it). Keeping in mind our primary goal of making value judgments about information technologies, we truly need a deep understanding of information and knowledge. Consequently, we will look at what mathematicians and philosophers have to say about the metaphysics of information and knowledge, and the epistemological concerns surrounding the interactions between minds, information and knowledge. As a result, students will begin to form a detailed picture of computer and information science as a discipline, while at the same time gain familiarity with some of the sub-disciplines within philosophy and how they contribute to our understanding of computer science.

Finally, with an understanding of the subject matter and several ethical theories from which to draw, we will focus our attention on one particular issue that has been introduced or exacerbated by information technology. The specific topic will vary...
from one instance of the course to another. The intent is for students to apply their knowledge of ethics to a particular problem in detail. Examples of problems include: copyright, privacy, gender, and virtual reality. For the Fall 2009 semester, we will explore the notion of gender and consider why there are so few women in the field of computer science, and what (if any) impact this has on the information society.

**Professor:** Dr. Kim Kihlstrom  
kimkihls@westmont.edu  
http://homepage.westmont.edu/kimkihls/  
Office: Math/CS Building (near post office) 805.565.6864  
Cell phone: 805.570.6722 (until 10 pm)

**Office Hours:** Mon. 2:00-5:00 pm, Tues. 1:30-2:30 pm, Wed. 2:00-3:00 pm, and by arrangement