Early projections at the dawn of computing technology that computers would soon match and exceed humans in intelligence are now seen as quaint, if not ridiculous. Despite enormous gains in computing power, genuine artificial intelligence has proven entirely elusive. To be sure, computer scientists have had some modest successes. Yet capturing human-level intelligence in a machine has thus far proven to be an intractable problem. At best, we seem to have achieved insect-level intelligence in some of our more complicated robots. The fact that projections about Artificial Intelligence have proven false begs an important question:

*What is it about human intelligence that makes the creation of human-level artificial intelligence so problematic?*

This question is especially important in light of the fact that modern neuropsychology assumes the human
The brain is itself a kind of biological computer. That is, researchers operate on the assumption that we are meat machines. In light of this assumption, we consider some of the most important questions in Philosophy, Psychology, and Computer Science:

- What is the place of the mental in a physical universe?
- How does the human brain underwrite the human mind, if it does?
- Are artificial minds possible, and if so, how?
- Are computational models of perception, intention, and action useful or deceptive?
- Is intentionality compatible with mechanism?
- Is autonomy compatible with mechanism?
- Is consciousness compatible with mechanism?
- Is identity compatible with mechanism?
- Are emotions compatible with mechanism?

It is not our goal in this course to argue that Artificial Intelligence is impossible. Rather, it is our goal to understand what makes human intelligence such an extraordinary and astonishing phenomenon by carefully considering some of the more important skeptical challenges to the possibility of artificial intelligence. Along the way, we learn a great deal about machines, on the one hand, and human minds, on the other.

Topics include:

- Dualism, Idealism, and Materialism
- Functionalism and Computational Psychology
- The Turing Test
- Computability and the Church/Turing Thesis
- Searle's Chinese Room Thought Experiment
- The Frame Problem
- Representationalism and Connectionism
- Mechanism and Autonomy
- Robot Intentionality
- Personhood and Personal Identity
- Consciousness

**Topic Schedule:**

- **Week 1**  Cognition in Ancient and Modern Philosophy
- **Week 2**  Cognition in Contemporary Philosophy
Week 3  Artificial Intelligence and the Turing Test
Week 4  Computability and Complexity Theory
Week 5  The Church-Turing Thesis and the Chinese Room Thought Experiment
Week 6  Robot Intentionality
Week 7  Robot Intentionality
Week 8  The Frame Problem
Week 9  Machine Consciousness
Week 10 Machine Consciousness
Week 11 Autonomous Machine Agency
Week 12 Personal Identity
Week 13 Connectionism, Situated Robotics, Genetic Algorithms, and A-Life
Week 14 Course Summary

* Tentative, pending class pacing and interest.

**Student Learning Outcomes:**

Students will

1. Learn the names of at least three important philosophers who have written on these topics--e.g., Plato, Putnam, and Turing.

2. Learn the names of at least three important arguments on these topics--e.g., The Chinese Room Thought Experiment, the Modal Argument, and the Knowledge Argument.

**Texts:**


* Useful but not required—selections from these and other sources will be provided as necessary.

**Requirements:**

**Term Paper:**

There will be a single, substantial paper due at the end of the term. The term paper will be developed in four stages: Proposal (due 3/7), Annotated Bibliography (due 3/28), Draft (due 4/18), and Final Copy (due 5/8). All due dates are tentative pending problem set and lecture pacing. Content and format instructions will be provided as each stage is assigned.

**Problem Sets:**

Problem sets will be assigned approximately every week. The problem sets will be frontloaded in the course so as to leave time at the end of the semester for the term paper. There are a total of ten problem sets. The two lowest-scoring problem sets are dropped.

**Participation:**

Students should be prepared to contribute to class discussion. Students should also be prepared to answer specific questions about the reading material and should be able to outline key elements of the assigned readings for the class. See below.

**Attendance:**

Attendance is not mandatory, but it is strongly recommended. See below.

**Policies:**

The professor assumes that students enrolled in this course are sincere student-scholars. That
is, the professor shall treat them with the respect due scholars, and, as scholars, they shall do their best to live up to the standards of scholars. To wit,

Preparation:

Scholars carefully read assignments in advance of class, take notes on their reading, explore specific issues in discussion with fellow scholars, and follow-up class by re-reading portions of the required readings and exploring suggested readings.

Participation:

Scholars are eager to respectfully, openly, and critically discuss arguments and issues raised by the readings. Scholars are adept at following a line of reasoning wherever it may lead. Most importantly, scholars welcome the insights and criticisms of their peers: A scholar understands that it is possible to entertain a proposition without believing it, just as it is possible to present an argument without personally endorsing the argument. Scholars enjoy vigorous deliberations and are always careful to treat fellow scholars with patience and good humor.

Assignments:

Scholars fully immerse themselves in assignments and never assume that an assignment is only legitimate if it will be covered on a test. Scholars are naturally curious and see every assignment as an opportunity to explore new issues, see old issues in new light, and hone their growing skills.

Cheating:

Scholars are very careful to give proper credit and maintain the highest standards of scholarly conduct. Thus, subject to university guidelines, any instance of cheating (including plagiarism) will be vigorously prosecuted.

Attendance:

Scholars always attend class barring serious injury, illness, or disaster. Scholars view class-time as rare and valuable for the thought it evokes and the opportunities it presents. Scholars arrive early for class and never leave class
early without obtaining prior approval from the professor.

**Grading Formula:**

There are 1000 points possible as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Sets</td>
<td>50 points each</td>
</tr>
<tr>
<td>Term Paper Prospectus</td>
<td>50 points</td>
</tr>
<tr>
<td>Critically Annotated Bibliography</td>
<td>100 points</td>
</tr>
<tr>
<td>Rough Draft</td>
<td>200 points</td>
</tr>
<tr>
<td>Final Draft</td>
<td>250 points</td>
</tr>
</tbody>
</table>

Total Points = sum of the best eight problem sets + prospectus + bibliography + draft + term paper

Course Grade is determined by the following scale:

- **A** 900-1000
- **B** 800 - 899
- **C** 700 - 799
- **D** 600 - 699
- **F** 000 - 599

**Additional Notes:**

Any change in the above will be announced in class. No change will be made which would be detrimental to the student's grade.

This syllabus is not authoritative. That is, the syllabus on the course website supersedes this syllabus wherever they differ. The professor and the students are only responsible for the syllabus as it appears in its entirety on the course website, including the schedule of topics and readings.

Any student missing a due date must provide a documented, acceptable reason according to university guidelines. Students with a proper excuse for missing a due date will be given a
reasonable extension.

Students without a proper excuse for missing a due date will lose 20 points per day after the due date.

*Required University Note to Students with Disabilities:* The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Disability Services Office at 825-5816 or visit their office in 116 Corpus Christi Hall.

*Required College of Liberal Arts Note on Academic Advising:* Academic advisors are available to assist students with course selection, degree plans, and other academic matters. Each college has an academic advising center, staffed by full-time, professional advisors. In our college the undergraduate advisor is Linda Miller (825-3466, Linda.miller@tamucc.edu). The graduate advisor is Rachelle Stanley (825-3466, Rachelle.stanley@tamucc.edu). Both are located on the second floor of Driftwood. Students who have yet to declare a major are advised by the Academic Advising Transition Center. For more information please call (361) 825-5931 or log on to http://www.tamucc.edu/~aac.

*Required College of Liberal Arts Note on the Grade Appeal Process:* Students who feel that they have not been held to appropriate academic standards as outlined in this class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details on the process of submitting a formal grade appeal, please visit the College of Liberal Arts website, cla.tamucc.edu/students/studentinfo.html. For assistance and/or guidance in the grade appeal process, students may contact the Associate Dean.

By accepting this syllabus the student indicates that the syllabus has been read, all requirements are understood, and all policies are acknowledged.