Texts: There are two required books for this course:


A few additional readings will be distributed directly to the class in electronic form.

Course Web Site: [www.nd.edu/~dhoward1/](http://www.nd.edu/~dhoward1/) - Then follow the obvious link.

Requirements: There will be three components in the computation of your final grade for the course:

1. **Discussion Papers** (60%). Each student will be required to submit three discussion papers, each a minimum of five pages, on topics to be worked out in consultation with the instructor. Each of the four discussion papers will be worth 20% of the final course grade. Papers will be graded on the basis of both content and mechanics, the latter counting for approximately 20% of the grade on each paper.

2. **Journals** (25%). You will be required to keep a journal for recording your critical reactions to the assigned readings. At a minimum, you should write a one-page (≥ 300 words) critical response to each reading assignment, though you are encouraged to write more, taking advantage of this opportunity to record your thoughts on any topic related to the course and the readings. Journal entries will be graded on a random, unannounced basis several times over the course of the semester. In addition, the entire journal will be checked regularly to be sure that all required entries are included. You will submit your journal entries through the Sakai page for this course, creating a “blog” entry for each of the reading assignments. (Be sure to remember to check the option “Only site administrators and I can see this entry” and to “publish” your entry.) You will be graded rigorously on the extent to which you use your journal, the minimum of one page (300 words) per reading being strictly enforced. But it will be the quality of thinking manifest in your journal that will chiefly determine your grade. For more on how to keep a good journal, see the extra handout on that topic.

3. **Class Participation** (15%). The remaining fifteen percent of your final grade will be determined on the basis of the quality and extent of your enthusiastic and constructive participation in class discussion.

One-minute Papers: Every class session will end a few minutes early to permit you to write a so-called “one-minute paper,” in which you will write no more than two- or three-sentence answers to two questions: (a) What was the most important point covered in today’s class? (b) What issue or question was left most unclear in your mind at the end of today’s class? These one-minute papers will be required of every student at the end of every class session and will be collected at the end of class, but they will not be graded.

Attendance: No more than two unexcused absences will be permitted during the semester; for every additional unexcused absence, the student’s final course grade will be reduced by one step on a plus/minus basis. Thus, for example, for a student with three unexcused absences, a final grade of B+ becomes a B, and for a student with four unexcused absences, a final grade of B becomes a C+. A student more than fifteen minutes late for class is assumed to be absent. If you must miss a class for any reason, be sure to let me know beforehand, or as soon after the fact as possible, so as to enable me to determine whether or not to excuse the absence. I promise to be generous in allowing excused absences for legitimate purposes.
### Schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 Jan</td>
<td>Introduction - What is Robot Ethics?</td>
<td></td>
</tr>
<tr>
<td>9 Feb</td>
<td><strong>No class.</strong></td>
<td></td>
</tr>
<tr>
<td>14 Feb</td>
<td>Building Lethal Autonomous Robots, IV</td>
<td>Arkin, “A Prototype Implementation,” Ch. 12 of <em>GLBAR</em>.</td>
</tr>
</tbody>
</table>
23 Feb. Technology and Ethics: Frameworks for Ethical Decision Making


27 Feb. First Discussion Paper Due

28 Feb. Design and Programming


2 Mar. Ethics Programming for Artificial Autonomous Moral Agents

Don Howard and Ioan Muntean, “Artificial Moral Cognition: From Functionalism to Autonomous Moral Agents.”

7 Mar. Law and Robotics

Richard O'Meara, "Contemporary Governance Architecture Regarding Robotic Technologies: An Assessment" and Peter M. Asaro, "A Body to Kick, but Still No Soul to Damn: Legal Perspectives on Robotics"

9 Mar. Law and Robotics

M. Ryan Calo,” Robots and Privacy”

13-17 Mar. Spring Break

21 Mar. Love, Sex, and Robots


23 Mar. Love, Sex, and Robots

Blay Whitby, “Do You Want a Robot Lover? The Ethics of Caring Technologies”

27 Mar. Second Discussion Paper Due

28 Mar. Medicine and Care

Jason Borenstein and Yvette Pearson, “Robot Caregivers: Ethical Issues across the Human Lifespan” and Noel Sharkey and Amanda Sharkey, “The Rights and Wrongs of Robot Care”

30 Mar. Medicine and Care

Steve Petersen, “Designing People to Serve.”

4 Apr. “Star Trek: The Next Generation,” episode 2.9, “The Measure of a Man”

Video in class

6 Apr. Rights and Ethics

Rob Sparrow, “Can Machines Be People? Reflections on the Turing Triage Test” and Kevin Warwick, “Robots with Biological
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 Apr.</td>
<td>Robotics and Prosthetics</td>
<td>Class visit by Eric Earley and Max Shepherd from the Center for Bionic Medicine</td>
</tr>
<tr>
<td>20 Apr.</td>
<td>Beyond the Advancing Edge of Technology: I. Self-Driving Cars</td>
<td>Patrick Lin, “The Ethics of Saving Lives With Autonomous Cars Are Far Murkier than You Think”</td>
</tr>
<tr>
<td>25 Apr.</td>
<td>Beyond the Advancing Edge of Technology: I. Self-Driving Cars</td>
<td>Mark Mills and Don Howard, “Punch the Accelerator on Self-Driving Cars.”</td>
</tr>
<tr>
<td>2 May</td>
<td>Beyond the Advancing Edge of Technology: II. The AI Singularity</td>
<td>Paul Allen, “The Singularity Isn’t Near”; Ray Kurzweil, “Don’t Underestimate the Singularity”</td>
</tr>
<tr>
<td>5 May</td>
<td><strong>Third Discussion Paper Due</strong></td>
<td></td>
</tr>
</tbody>
</table>