CATALOG DESCRIPTION OF THE COURSE. [Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

ENGL 338  SCIENCE AND CONSCIENCE (3)
Prerequisite: upper-division standing.
This course is a team-taught interdisciplinary course that examines various ethical issues within the sciences, using several case studies. The scientific, historical and social aspects of each case study will be examined from different perspectives. Students will learn scientific concepts which will facilitate an informed understanding of the ethical issues involved. Same as PHYS 338. GenEd: B1, C2

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2. Mode of Instruction.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>25</td>
</tr>
</tbody>
</table>

3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

This is an upper-division interdisciplinary GE course which brings together the methodologies of literature/cultural studies and science in order to show students how two different disciplines grapple with the same issue. The course will bring together disparate disciplines to enable students to encounter vital issues of the 21st century.

Through this course, students will be able to
- analyze, synthesize, evaluate and interpret information and ideas
- construct and support hypotheses and arguments
- distinguish among knowledge, values, beliefs and opinions
- recognize fallacies and inconsistencies
- explain the scientific principles and concepts underpinning specific new technologies
- interpret graphs, tables and diagrams
- integrate knowledge and experience to arrive at creative solutions
- make decisions based on an informed understanding of the moral and ethical issues involved
- employ and expand the imagination
- appreciate the value of considering issues from a variety of different disciplinary points of view
- practice textual interpretation
- develop critical writing skills
The course is not designed to satisfy the University Writing or Language requirements, although it will include substantial components of writing and oral presentation.

4. **Is this a General Education Course**

   **YES**

   **NO**

   **If Yes, indicate GE category:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (English Language, Communication, Critical Thinking)</td>
<td></td>
</tr>
<tr>
<td>B (Mathematics &amp; Sciences)</td>
<td>X</td>
</tr>
<tr>
<td>C (Fine Arts, Literature, Languages &amp; Cultures)</td>
<td>X</td>
</tr>
<tr>
<td>D (Social Perspectives)</td>
<td></td>
</tr>
<tr>
<td>E (Human Psychological and Physiological Perspectives)</td>
<td></td>
</tr>
</tbody>
</table>

5. **Course Content in Outline Form.** *Be as brief as possible, but use as much space as necessary*

   The course will pose ethical questions that come out of current debates about various scientific issues. They will include: what is the responsibility of the scientist when developing new technologies? What are the possible consequences of developing these technologies? Who decides what policies should be set? How does the growing “expertise” required to work in ever-narrowing fields affect the ability of society as a whole to evaluate questions of science and technology?

   These questions and others form the umbrella under which two (or three) case studies will be examined. The historical, scientific and social aspects of each case will be examined from different perspectives, and scenarios proposed and analyzed. Case studies might include: the nuclear predicament, the use of radiation in medicine, robotics/AI, cloning, the use of animals in medical research. In each case, the scientific principles and concepts itself will be presented and discussed and students will read literary texts which relate to the issue.

6. **References.** *Provide 3 - 5 references on which this course is based and/or support it.*

   Journals of particular relevance include *Scientific American*, *Nature*, *Science* and *Physics Today*.

   For the case study: the nuclear dilemma
   - Miller, Walter A Canticle for Leibowitz
   - Miller, Waltr and Martin Greenberg, Editors, *Beyond Armageddon: Twenty-One Sermons to the Dead*
   - Caldicott, Helen, *Missile Envy: The Arms Race and Nuclear War*
   - Hersey, John, *Hiroshima*
   - Rhodes, Richard, *Dark Sun: The Making of the Hydrogen Bomb*
   - Bohr, Nils, essays
   - Sakharov, Andrei essays

   For the case study: robotics/AI
   - Asimov, Isaac, “The Bicentennial Man”
   - Brooks, Rodney, *Flesh and Machines: How Robots Will Change Us*
   - Gibson, William, *Neuromancer*

   For the case study: cloning/genomics
   - Cherryh, C. J., *Cyteen*
   - Wilhelm, Kate, *Where Late the Sweet Birds Sang*
   - Brinn, David, *Glory Season*
   - Chase, John, *The Genesis Code*
   - Goonon, Kathleeen Ann, *The Bones of Time*
   - Pence, Gregory, *Who’s Afraid of Human Cloning?*
   - Kolata, Gina, *Clone: The Road to Dolly and the Path Beyond*
   - Silver, Lee, *Remaking Eden: Cloning and Beyond in a Brave New World*
   - Reiss, Michael and Roger Straugh, *Improving Nature? The Science and Ethics of Genetic Engineering*

NEWCRSFR 9/30/02
7. **List Faculty Qualified to Teach This Course.**

   Dr. Renny Christopher  
   Dr. Geoff Dougherty

8. **Frequency.**  
   a. Projected semesters to be offered: Fall _X____  Spring _____  Summer _____

9. **New Resources Required.**  
   a. Computer (data processing), audio visual, broadcasting needs, other equipment  
      None  
   b. Library needs  
      The works listed above in 6.  
   c. Facility/space needs  
      None

10. **Consultation.**  
    Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

    ______ Geof Dougherty/Renny Christopher ______ 12-16-02 ____________________________  
    Proposer of Course                  Date