1. **General Information:**
   - Alpha-numeric codification: INTD 6095
   - Course Title: **Responsible Research in Appropriate Technology**
   - Number of credits: 3
   - Contact Period: 3 contact hours of Conference a week

2. **Course Description:**
   - **English:** Responsible research in community development and appropriate technology including themes such as Introduction to RCR (Responsible Conduct of Research), Capabilities Approach, Responsible Choice in Appropriate Technology, Socio-Technical System Analysis, and Collective Informed Consent in Developing Communities. Students will design case studies that explore research in community development projects and appropriate technology.
   - **Spanish:** Investigación responsable en el desarrollo de la comunidad y de la tecnología apropiada, incluyendo temas tales como Introducción a RCR (Conducta Responsable en la Investigación), Enfoque de las Capacidades, Selección Responsable de Tecnología Apropiada, Análisis de Sistemas Socio-técnicos, y el Consentimiento Informado Colectivo en Comunidades en Desarrollo. Los estudiantes designarán estudios de casos que exploran las investigaciones en proyectos de desarrollo comunitario y la tecnología apropiada.

3. **Pre/Co-requisites and other requirements:**
   - graduate student standing.

4. **Course Objectives:**
   - Upon successful completion of this course the student shall be able to:
     - Develop a broad awareness of Responsible Conduct of Research in technology and its relationship to human progress and community development.
     - Understand and apply socio-technical system analysis to real world cases
     - Learn the process of choice that is inherent to technological design, especially in the context of developing communities
     - Develop an understanding of the Human Capability Approach by applying and discussing it in case studies of human development and appropriate technology
     - Exploring partnerships between governments, NGOs, for-profit, and non-profit organizations for attacking problems in developing communities
   
   The objectives of the course will be assessed using essay exams, portfolios, in-class poster presentation, and case study presentations. Other assessment tools such as quizzes and short assignments may be used at the professor’s discretion.

5. **Instructional Strategies:**
   - ☑ conference ☑ discussion ☑ computation ☐ laboratory
   - ☑ seminar with formal presentation ☐ seminar without formal presentation ☐ workshop
   - ☐ art workshop ☐ practice ☑ trip ☐ thesis ☑ special problems ☐ tutoring
   - ☑ research ☐ other, please specify:
### 6. Minimum or Required Resources Available:

Reading list of articles and book chapters.

### 7. Course time frame and thematic outline

<table>
<thead>
<tr>
<th>Outline of Topics</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction to Responsible Conduct of Research</strong></td>
<td></td>
</tr>
</tbody>
</table>
| - Presentation “The Gray World: Introducing Ethics to Future Professionals in Science and Engineering” http://cnx.org/content/m37142/1.7/  
- Fabrication, Falsification, and Plagiarism  
- Informed Consent, Risk, and Justice in Scientific Research  
- Other RCR issues such as conflict of interest, authorship, and mentorship  
| **Exploration of Responsible Conduct of Research: The Institutional Review Board or IRB** |               |
| - Introduction to the Belmont Report (Connexions Module: “Ethical Issues in Graduate Research” http://cnx.org/content/m31972/1.3/)  
- IRB Role Play (Found at Open Seminar http://openseminar.org/ethics/) | 2             |
| **Profitable Partnerships between for-profit, not-for-profit, NGOs, and governments geared toward eliminating poverty and hunger** | 6             |
| - Examination of successful cases presented by Werhane et al  
- Skill Development Activities: Moral Imagination, Systems Thinking, Deep Dialogue  
**Allieviating Poverty through Profitable Partnerships: Globalization, Markets and Economic Well-Being,** Routledge, 2010 |               |
| **The Capabilities or Human Development Approach**                                | 6             |
| - Presentation of Rights Approach  
- A Presentation of Capabilities Approach as alternative to rights approach  
- Resource: Nussbaum, Martha C.  
| **Responsible Choice in Appropriate Technology**                                 | 9             |
| - Technology Choice Cases  
- Poster Activity  
- Resource: “Appropriate Choice in Appropriate Technology.” http://cnx.org/content/m43922/1.17/ |               |
| **Collective Informed Consent in Developing Communities**                         | 9             |
- **Activity:** Ethics Bowl Debate on case, “Informed Consent and the Collection of Biological Samples from Indigenous Populations.”  
**Graduate Research Ethics: Cases and Commentaries - Volume 2, 1998** edited by Brian Schrag |               |
| **Designing New Case Studies in Community Development and Appropriate Technology** | 9             |
| - **Resource:** “Writing and Analyzing Cases in Business and Research Ethics” |               |
Activity: Students will identify ongoing case in community development/appropriate technology, build a case study, and present it before the class for discussion.

| Total hours: (equivalent to contact period) | 45 |

8. Grading System

☐ Quantifiable (letters) ☐ Not Quantifiable

9. Evaluation Strategies (suggested; may be modified at discretion of instructor)

<table>
<thead>
<tr>
<th>THEORY</th>
<th>Quantity</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Exams (Midterm)</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>☑ Quizzes</td>
<td>Variable</td>
<td>0 to 10</td>
</tr>
<tr>
<td>☑ Portfolio</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>☑ Final Project: Case Analysis</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>☑ Other: Participation</td>
<td>Variable</td>
<td>0 to 10</td>
</tr>
</tbody>
</table>

TOTAL: 100%

10. Bibliography:

Required Readings –

6. Connexions Modules

References:

Morgan & Claypool Series available through UPRM library

11. According to Law 51
Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

Prepared by:
Dr. William Frey
Dr. Marcel Castro-Sitiriche
Dr. Christopher Papadopoulos

Approved by:
Dr. Darnyd Ortiz