Module Code  | CS7039  
Module Name  | Research Methods  
ECTS Weighting  | 5 ECTS  
Semester taught  | Semester 1  
Module Coordinator/s  | Khurshid Ahmad, Brendan Tangney and guest lecturers  
Module Learning Outcomes  
On successful completion of this module, students will be able to:  
LO1. Understanding of the scope of research in Computer Science and Data Science  
LO2. Improvements in written and presentational skills  
LO3. Appreciation of philosophical, ethical and societal concerns  
LO4. Comprehension of the commercial potential of post-graduate research  
Module Content  
**COURSE CONTENT**  
**Scope of research in Computer and Data Science:** Comp. Science & Engineering and Data Science Research; Research Paradigms in Computer Science; Disruptive Technologies: Rise of AI & Machine Learning, and Block Chain Technologies; Ethics and legality. (6 Lectures)  
**Communication and Presentation Skills:** Writing a doctoral dissertation; Language of Science & technology; and, E-books and databases in the TCD Library. (2 Lectures and 1 Tutorial Session)  
**Novel Dimensions of Research in Computer Science and Data Science:** Cognitive Apprenticeship; Communities of Practice, Taxonomy of Research & Typology of theses; and, Some philosophical & social aspects of research; (3 Lectures)  
**Technology Transfer and Commercialisation of Research:** Mentoring Computer Science Research: Big Data and Quality Control+ Q&A; Financial evolution of mega-companies in computing and IT; and, Technology Transfer in the real-world. (5 Lectures and Presentations).  
**MODULE ASSESSMENT**  
The course assessment is by a poster presentation of a research proposal developed by a group of 2-3 students over an eight week period. The students will have to produce two pieces of coursework. First, a 1000 word poster outlining the proposal, and second, a press release, written in laypersons language that describes the novelty and relevance of the project.  
The poster presentation will be judged one academic and professionals dealing with research proposals and with the funding of research proposals.  
_There is no written examination._  

---

1 TEP Glossary
Teaching and Learning Methods

There are 4 major themes covered in this course involving computer science staff and guest lecturers drawn from major IT companies, technology transfer specialists, and experts in business and finance.

Theme 1 - **Scope of research in Computer and Data Science**: The lectures first introduce the students to the problems of research in computer science and in data science. The focus in these lectures is on evolving subjects like computer science that can disrupt society and sciences in an unpredictable fashion. Data is the lifeblood of modern day living covering all its aspects, so data becomes valued and cherished property that has to be protected and nurtured.

Theme II - **Communication and Presentation Skills**: There are lecturers that deal with issues in written communication especially the language of science and technology. This leads to how to cite the work of others and deploy digital resources in the conduct of research and experimentation.

Theme III - **Novel Dimensions of Research in Computer Science and Data Science**: Given the impact of computer science research on the individual and the society as a whole, there are series of lectures on philosophical, collaborative, and societal aspects of research.

Theme IV - **Technology Transfer and Commercialisation of Research**: Computer science research is expensive and much depends on the support of the taxpayers. When properly commercialised, the pay-off of this research is far reaching. This series of lectures are presented by external speakers dealing with research, enterprise and application, who deal with finance, business and technology transfer.

### Assessment Details

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Brief Description</th>
<th>Learning Outcomes Addressed</th>
<th>% of total</th>
<th>Week set</th>
<th>Week due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press Release</td>
<td>Comprising an outline of the research project</td>
<td>LO2 &amp; LO3</td>
<td>20%</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Poster Content</td>
<td>Outline of research project comprising literature review, methodology, economic and social impact and estimated costs</td>
<td>LO1, LO4</td>
<td>40%</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Poster Presentation</td>
<td>Research Project presentation to 3-4 judges</td>
<td>LO2</td>
<td>40%</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

### Reassessment Details

Resubmission of coursework.

### Contact Hours and Indicative Student Workload

<table>
<thead>
<tr>
<th>Contact Hours (scheduled hours per student over full module), broken down by:</th>
<th>30 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>lecture</td>
<td>24 hours</td>
</tr>
<tr>
<td>laboratory</td>
<td>3 hours</td>
</tr>
<tr>
<td>tutorial or seminar</td>
<td>3 hours</td>
</tr>
<tr>
<td>other</td>
<td>0 hours</td>
</tr>
</tbody>
</table>

---

2 [TEP Guidelines on Workload and Assessment](#)
Independent study (outside scheduled contact hours), broken down by:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation for classes and review of material (including examination)</td>
<td>N/A</td>
</tr>
<tr>
<td>Completion of assessments</td>
<td>36</td>
</tr>
<tr>
<td>Total Hours</td>
<td>66</td>
</tr>
</tbody>
</table>

Recommended Reading List

Prerequisite modules: list module codes

**Other/alternative non-module prerequisites:** e.g. programming languages, specified topics, etc.. This information will be particularly relevant for visiting students or students taking this module as an approved module (if applicable).

Module Pre-requisites

Module Co-requisites

Module Website

Last Update

DD/MM/YYYY by Your Name