

# Research Methods in CSAI

## Course Outline

Convenor: Richard Cox  
(richc Ci102)

Tutor: Johanna Hunt  
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<http://www.informatics.sussex.ac.uk/users/johannah/ResMeth/>

Term I, Autumn 2008

## **Objectives**

This graduate course aims to help students understand science and the scientific method, and looks at research in academic and industrial contexts. It also aims to provide practical skills in finding and using sources of research information, research management, and basic data analysis techniques.

## **Syllabus**

Topics are chosen from:

- Is Computer Science a science?
- Scientific thinking
- Basic versus applied science
- Academic versus industrial research and development
- Approaches to research
- Introduction to research methods
- Questionnaires and surveys
- Acquiring, coding and analysing quantitative data
- Acquiring, coding and analysing qualitative data
- Introduction to data handling analysis and statistics
- Submitting papers to conferences and journals
- Planning for research or study
- Time management
- Sources of research information
- Ethics in research
- Writing-up a thesis
- Innovation in industry

The term's schedule is designed based on the needs of the researchers and is gathered via the Research Methods in CSAI survey available at: <http://www.surveymonkey.com/s.asp?u=359552658548>. Once finalised the schedule will be available on the course website along with indicative reading.

## **Course Organisation**

There will be nine two-hour seminars starting in week 2 on Mondays 14.00 until 15.50 in ARUN-404 together with weekly set reading. Beginning in week 4 a couple of students each week will present an overview of their own research area and of the research methods typically used in that domain, as a focus for class discussion.

## **Course Assignments**

This is a one term course, taught in the autumn term of the first year of DPhil or MRes study. The course is assessed by coursework (100%). The coursework consists of two parts. The first exercise is peer-assessed in-class on the day of the student's presentation. The second exercise consists of a piece of written work/research due on Monday 8th December 2008 (subject to review). The first part contributes 25% of the coursework mark and the second part is worth 75%.

1. Based on your own DPhil research topic or some other chosen topic agreed with the course tutor, each class member shall write up a short research proposal (2000 words). The proposal should include a title, introduction, brief literature review, statement of aims and hypotheses, research methodology or approach adopted (with justification), research procedure, 'results' (with an indication of the data analysis approach chosen), discussion/conclusions and suggestions for future work. This proposal will be presented to the class during a seminar. Proposals are peer-assessed.
2. Write a comparative and critical review of 2 or 3 different research methodologies, paradigms or approaches to research or evaluation commonly used in your specific area of research (or proposed research) - 3500 words.

Usual Informatics 'terms and conditions' for assignments apply, i.e. any coursework handed in up to one week after the deadline will be subject to a penalty; any coursework handed in later than one week after the deadline will receive no marks. All cases of collusion and plagiarism will be reported to the appropriate exam board.

## **Questions**

Please feel free to contact the course tutor or convenor to ask questions about this course or to book a time to speak in person.

**Research Methods in CSAI**  
**Proposed Course Schedule**

<b>WEEK</b>	
2	What is Research to us?
3	Is Computer Science a Science? Theoretical Underpinnings.
4	<p>Research Information: Mailing Lists, Journals, Conferences, Abstract Databases, Courses, Papers to Conferences and Journals. Calls For Papers.</p> <p>Research Planning: Different approaches to research. Time management and effective research strategy.</p>
5	Some ways of Acquiring, Coding and Analysing Qualitative Data – (example: Interviews)
6	<i>Research Presentations</i>
7	<p>Some ways of Acquiring, Coding and Analysing Quantitative Data – (example: Questionnaires and Surveys)</p> <p><i>Research Presentations</i></p>
8	<p>Technology and Research Software (TBC)</p> <p><i>Research Presentations</i></p>
9	Ethics in Research (TBC)
10	Academic vs Industrial R&D (TBC)