Course Outline

Public

Edit Resource (/COMP2111/19T1/resources/24337/edit)

COMP2111 Course Outline

Contents

- Course Details
- Course Summary
- Course Timetable
- Course Aims
- Student Learning Outcomes
- Assumed Knowledge
- Teaching Rationale
- Teaching Strategies
- Assessment
- Student Conduct
- Special Consideration
- Course Schedule
- Resources for Students
- Course Evaluation and Development

Course Details

Course Code	COMP2111
Course Title	System Modelling and Design
Convenor	Paul Hunter (https://webcms3.cse.unsw.edu.au/users/z3520914)
Tutors	Paul Hunter (https://webcms3.cse.unsw.edu.au/users/z3520914)
	Charles Bradford
	Daniel Brownlow
	Edward Lu
	Harrison Scott
Classes	**Lectures** : Mon 10-12, ElecEngG22, Weeks 1-9,11 Wed 10-12, OMB149, Weeks 1-10

Course Website	http://www.cse.unsw.edu.au/~cs2111 (http://www.cse.unsw.edu.au/%7Ecs2111)
Handbook Entry	http://www.handbook.unsw.edu.au/undergraduate/courses/current/COMP2111.html (http://www.handbook.unsw.edu.au/undergraduate/courses/current/COMP2111.html)

Course Summary

The course builds on the MATH1081 Discrete Mathematics course, examining the role of Mathematics in Computer Science. The main focus will be on introducing students to formal modelling and specification and how they are used in Software Development.

Course Timetable

The course timetable is available here. (https://webcms3.cse.unsw.edu.au/COMP2111/19T1/timetable)

Course Aims

The first basic aim is to re-enforce the understanding of Discrete Mathematics and the role it plays in Computer Science.

The second basic aim is to learn how to systematically derive implementations from formal specifications using simple mathematics. This can be done with pencil and paper or with tool support. The latter will be demonstrated occasionally in class. The skills acquired feed directly into the SE workshops SENG2011 and SENG2021.

The third basic aim is to develop an understanding of the rules for deriving implementations from specifications. Why do they work? What do we have to prove and how? This is crucial for later industrial software engineering practice.

Student Learning Outcomes

After According to UNSW policy, graduate attributes *are important because the disciplinary knowledge that students develop at university is not adequate in itself as the basis for their future lives. Instead, graduates need qualities and skills that equip them for lifelong learning. These include critical thinking and problem-solving skills as well as communication skills and information literacy skills.*

This course contributes to the development of the following graduate capabilities:

Graduate Capability	**Acquired in**
scholarship: understanding of their discipline in its interdisciplinary context	lectures
scholarship: capable of independent and collaborative enquiry	tutorials, assignments
scholarship: rigorous in their analysis, critique, and reflection	tutorials, assignments
scholarship: able to apply their knowledge and skills to solving problems	assignments
scholarship: capable of effective communication	forum
scholarship: information literate	lectures, tutorials, assignments
scholarship: digitally literate	lectures
professionalism: capable of independent, self-directed practice	assignments

professionalism: capable of operating within an agreed Code of Practice	all course-work, by doing it yourself
global citizens: culturally aware and capable of respecting diversity and acting in socially just/responsible ways	interaction with your fellow students

Assumed Knowledge

Proofs, set theory, propositional logic, predicate logic (all from from MATH1081); general mathematical concepts from MATH1131/MATH1231; programming concepts from COMP1511/COMP2521 courses (or the higher versions of these courses where available); requirements concepts from COMP1531. COMP2111 is a prerequisite for SENG2011.

Teaching Rationale

Lectures will include exercises where we examine the practice of formulating and proving mathematical properties of relevance to Computer Science. Weekly tutorials aim to cement understanding and provide immediate and ongoing feedback for students to assess their understanding of the course material. Assignments aim to deepen analysis and understanding via additional examples and problems. There are no laboratory classes for this subject.

Teaching Strategies

- **Lectures** introduce concepts and show examples
- **Tutorials** reinforce concepts, provide feedback for students to self-assess progress
- **Assignments** provide additional examples and allow students to solve problems

Assignments are tentatively due at the end of weeks 4, 7, and 10. Late submissions will be penalized at a rate of 10% per 12 hour period or part thereof. See also the section on Special Consideration .

Assessment

The final mark is determined as the sum of the marks for the assessible components for this course:

- 50% exam, 50% assignments:
  - Assignment 1, worth up to 20 marks;
  - Assignments 2 and 3, worth up to 15 marks each
  - a final written exam (2 hours) worth up to 50 marks
- Your final overall mark for this course will be taken from the total of your assignment marks and your final exam mark.
- To pass the course, you must achieve:
  - An overall score of 50 or higher, **AND**
  - At least 40% (20 marks) in the final exam.
- Students are eligible for a Supplementary Exam if and only if:
  - they cannot attend the final exam due to illness or misadventure
  - their final mark is in the range $47 \leq \text{FinalMark} < 50$ (in this case, your overall mark is limited to 50)

  A supplementary exam will not be awarded for any other reason, in particular it will not be awarded if you do not achieve 40% in the final exam.

Student Conduct

The **Student Code of Conduct** (Information (https://student.unsw.edu.au/conduct) , Policy (https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf)) sets out what the University expects from students as members of the UNSW community. As well as the learning, teaching and research

environment, the University aims to provide an environment that enables students to achieve their full potential and to provide an experience consistent with the University's values and guiding principles. A condition of enrolment is that students *inform themselves* of the University's rules and policies affecting them, and conduct themselves accordingly.

In particular, students have the responsibility to observe standards of equity and respect in dealing with every member of the University community. This applies to all activities on UNSW premises and all external activities related to study and research. This includes behaviour in person as well as behaviour on social media, for example Facebook groups set up for the purpose of discussing UNSW courses or course work. Behaviour that is considered in breach of the Student Code Policy as discriminatory, sexually inappropriate, bullying, harassing, invading another's privacy or causing any person to fear for their personal safety is serious misconduct and can lead to severe penalties, including suspension or exclusion from UNSW.

If you have any concerns, you may raise them with your lecturer, or approach the School Ethics Officer (mailto:ethics-officer@cse.unsw.edu.au) , Grievance Officer (mailto:grievance-officer@cse.unsw.edu.au) , or one of the student representatives (mailto:stureps.ug@cse.unsw.edu.au) .

Plagiarism is defined as (https://student.unsw.edu.au/plagiarism) using the words or ideas of others and presenting them as your own. UNSW and CSE treat plagiarism as academic misconduct, which means that it carries penalties as severe as being excluded from further study at UNSW. There are several on-line sources to help you understand what plagiarism is and how it is dealt with at UNSW:

- Plagiarism and Academic Integrity (https://student.unsw.edu.au/plagiarism)
- UNSW Plagiarism Procedure (https://www.gs.unsw.edu.au/policy/documents/plagiarismprocedure.pdf)

Make sure that you read and understand these. Ignorance is not accepted as an excuse for plagiarism. In particular, you are also responsible that your assignment files are not accessible by anyone but you by setting the correct permissions in your CSE directory and code repository, if using. Note also that plagiarism includes paying or asking another person to do a piece of work for you and then submitting it as your own work.

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.

If you haven't done so yet, please take the time to read the full text of

- UNSW's policy regarding academic honesty and plagiarism (https://student.unsw.edu.au/plagiarism)

The pages below describe the policies and procedures in more detail:

- Student Code Policy (https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf)
- Student Misconduct Procedure (https://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)
- Plagiarism Policy Statement (https://www.gs.unsw.edu.au/policy/documents/plagiarismpolicy.pdf)
- Plagiarism Procedure (https://www.gs.unsw.edu.au/policy/documents/plagiarismprocedure.pdf)

You should also read the following page which describes your rights and responsibilities in the CSE context:

- Essential Advice for CSE Students (https://www.engineering.unsw.edu.au/computer-science-engineering/about-us/organisational-structure/student-services/policies/essential-advice-for-cse-students)

Special Consideration

If your work in this course is affected by unforseen adverse circumstances, you should apply for Special Consideration through MyUNSW, including documentation on how your have been affected. If your request is reasonable and your work has clearly been impacted, then

- for an assignment, you may be granted an extension
- for the Final Exam, you may be offered a Supplementary Exam

Note the use of the word "may". None of the above is guaranteed. It depends on you making a convincing case that the circumstances have clearly impacted your ability to work.

If you are registered with Disability Services, please forward your documentation to Paul Hunter (mailto:pwhunter.work@gmail.com) within the first two weeks of semester.

Course Schedule

The following is a **tentative** schedule of when topics will be covered.

Week	Topic	Assignment
1	Introduction; Recap of Discrete Mathematics concepts	
2	Recursion and induction	
3	Propositional logic	
4	Predicate logic	Assignment 1 due
5	Introduction to program semantics	
6	Set-based semantics	
7	Operational semantics	Assignment 2 due
8	State machine models	
9	Invariants and invariant-based proofs	
10	Course review	Assignment 3 due

Resources for Students

There is no set textbook, however the following resources provide useful background reading:

- Eric Lehman, F. Thomson Leighton, and Albert R. Meyer , Discrete Mathematics for Computer Science (https://courses.csail.mit.edu/6.042/spring18/mcs.pdf) . 1042 pages, online textbook, January 2018 edition.
- Carroll Morgan , Programming from Specifications (http://www.cse.unsw.edu.au/~carrollm/ProgrammingFromSpecifications.pdf) , Prentice-Hall, 1998.
- John C. Reynolds , The Craft of Programming (http://www.cs.cmu.edu/~jcr/craftprog.html) , Prentice-Hall, 1981.

Course Evaluation and Development

This course is being continuously improved and we will conduct a survey through the CATEI (Course and Teaching Evaluation and Improvement) process at the end of session to obtain feedback on the quality of the various course components. Your participation in the survey will be greatly appreciated. Students are also encouraged to provide informal feedback during the session, and to notify the lecturer-in-charge of any problems as soon as they arise.

Resource created about a year ago (Sunday 17 February 2019, 04:40:57 PM), last modified about a year ago (Monday 18 February 2019, 11:43:39 PM).

Comments

(/COMP2111/19T1/forums/search?forum_choice=resource/24337) (/COMP2111/19T1/forums/resource/24337)



Mohamed Muqaddis (/users/z5143739) 11 months ago (Thu May 09 2019 12:35:52 GMT+1000 (Australian Eastern Standard Time))

Are we allowed to bring in any notes to the exam hall. A bit confused on that.

Thanks in advance.

Edit Delete



Luka Kerr (/users/z5214138) 11 months ago (Thu May 09 2019 13:00:13 GMT+1000 (Australian Eastern Standard Time))

Yeah, in the course review lecture https://webcms3.cse.unsw.edu.au/static/uploads/cou... (https://webcms3.cse.unsw.edu.au/static/uploads/course/COMP2111/19T1/8522bee25c2abc2880fd4b8e3d78d72ce6e9670a579e1753a0e5daaa818ffdeb/lec10.pdf) on page 10 it says you can bring in "One handwritten or typed A4-sized sheet (double-sided is ok) of your own notes"

Edit Delete



Shane Kadish (/users/z5075632) about a year ago (Wed Feb 20 2019 12:20:51 GMT+1100 (Australian Eastern Daylight Time))

Is tutorial attendance for this class compulsory?

Edit Delete



Paul Hunter (/users/z3520914) about a year ago (Thu Feb 21 2019 21:58:17 GMT+1100 (Australian Eastern Daylight Time))

There is no requirement that you attend tutorials, however it is **strongly** recommend that you make use of them:

- tutorials are opportunities for tutors to pass on information that I may have forgotten to mention or not explained well in lectures
- tutorials give you a chance to interact with staff in a more intimate environment, so you are more likely to get a "better" answer to any questions you might have. Tutors can also pass on insights (e.g. how they go about solving particular questions)
- tutorials give you a chance to interact with other students from the course without having to make other arrangements
- if your results place you on a grade boundary, I will be consulting with your tutor to see if you were *proactive* in your learning for this course. If you attend (and actively participate) in tutorials, then the tutor will get to know you and this will work in your favour for these kinds of decisions.

Edit Delete