Course Outline

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Course Details

Course Code	GSOE9210
Course Title	Engineering Decisions
Units of Credit	6
Course Website	http://cse.unsw.edu.au/~gs9210 (http://cse.unsw.edu.au/~gs9210)
Handbook Entry	http://www.handbook.unsw.edu.au/postgraduate/courses/current/GSOE9210.html (http://www.handbook.unsw.edu.au/postgraduate/courses/current/GSOE9210.html)

Course Summary

This course focuses on analytical skills and techniques for making complex high-stakes decisions. The topics covered in this course include:

- Decision problems
- Representing decision problems
- Decision-making under uncertainty
- Measuring belief and uncertainty
- Measuring preference
- Decisions involving others

Course Timetable

The course timetable is available here (/GSOE9210/18s2/timetable) .

Course Aims

The course prepares engineering graduates for decision-making roles by developing their understanding of universal decision-making principles and methods that help improve outcomes of decisions.

Student Learning Outcomes

After you've successfully completed this course you should be able to:

- *identify the key elements in a decision*
- *model decisions in analytical form*
- *compare modelling trade-offs and their implications*
- *apply a variety of analytical techniques to derive solutions to decision models*
- *evaluate, revise, and justify decision models and their solutions*

General educational benefits

Rational decision-making is a fundamental skill that exercises a broad range of analytical and practical problem-solving skills. The course's focus on universal principles allows students to become informed and competent decision-makers in the broader context of their professional and personal lives.

Assumed Knowledge

There are no formal prerequisites for this course, although some elementary knowledge of statistics, probability, and discrete mathematics will be helpful. The most important prerequisites are general logical reasoning and problem-solving skills and the ability to make abstractions.

Teaching Rationale

Ron Howard, Professor of Economic-Engineering Systems at Stanford:

> “If . . . decision-theoretic structures do not in the future occupy a large part of the education of engineers, then the engineering profession will find that its traditional role of managing scientific and economic resources for the benefit of man has been forfeited to another profession.”

—Ron Howard (1966)

Professor of Management Science and Engineering

Stanford University

Teaching and Learning Activities

The course's teaching and learning activities include:

- Lectures: classes that introduce basic concepts and give examples
- Tutorials: times devoted to working through problems and examples
- Forums: this website has a forum for students to discuss the course material. The forum provides a student-oriented, collaborative approach to learning from/with one's peers

- Exercises: released each week for students to practice solving problems
- Student consultations: scheduled regularly in-session to provide additional support for student learning

Course Schedule

The course consists of ten (10) weeks of classes. Each week, video lectures and exercise sets will be provided. No new material will be covered in week 6, but some supplementary material or optional tutorials/consultation blocks may be scheduled.

Assessment for this course consists of four (4) in-course online quizzes and a final exam. The quizzes will be held in weeks 3, 5, 7 and 9.

Assessment

The final mark for the course is based on a combination of in-course assessment and a final exam. The in-course assessment contributes 40% of the final mark; it consists of four (4) online quizzes each worth 10%. The final exam is worth the remaining 60%. The schedule for the quizzes is given in the *Course Schedule* below.

Each quiz is only worth 10% of your final mark. Their primary purpose is to help you monitor your progress so that when you get to the final exam, you'll have a reasonable idea of where you're at. The other purpose is to help keep you on schedule, so you aren't tempted to let yourself fall behind. The quizzes are intended to reward those who engage in the course and keep up to date. All quizzes will be conducted online on Moodle.

If you miss a quiz you will receive a mark of 0 for it. If you open the quiz you make yourself ineligible for special consideration. To be eligible for special consideration a valid special consideration request must be submitted before the start time of the quiz (1pm AET) on or before the day of the quiz.

All the quizzes are entirely multiple choice. They may cover all material from the start of the course up to and including the time of the quiz (including material of the week of the quiz). Not all questions are of equal value.

You must complete the quiz by yourself. You are not allowed to cooperate or communicate with anyone else for the entire period that the quiz window (1300-1430) is open. This means you must not use a phone or any other communications device (this includes a computer) and must not talk, text, message, email, etc., to/with anyone else. Communicating with others during this period is considered cheating and will incur severe penalties, which may include failing the course, or, if deemed serious enough, expulsion from the university.

The course uses a full grading scheme, following the UNSW scale:

> 85+ → HD, 75–84 → DN, 65–74 → CR, 50–64 → PS

Special consideration

For information about special consideration, including the date of the supplementary exam, please read CSE Student Conduct (https://www.engineering.unsw.edu.au/computer-science-engineering/about-us/organisational-structure/student-services/policies/essential-advice-for-cse-students) .

For information about UNSW's policy regarding special consideration and to submit a special consideration request, see https://student.unsw.edu.au/special-consideration (https://student.unsw.edu.au/special-consideration) .

There will be no supplementary assessment for quizzes. If you miss a quiz you will receive 0 for that quiz unless you have been granted special consideration. Do not attempt a quiz if you are adversely affected by illness or misadventure; if you attempt a quiz you become ineligible for special consideration.

If you are granted special consideration for one or more quizzes, then at the end of the course your marks will be calculated as follows. If you have been granted special consideration for one quiz, the missed quiz mark will be replaced by your median mark in the other three quizzes. If you have been granted special consideration for two quizzes, your mark for *one* of the missed quizzes will be replaced by the minimum of the other two; the other missed quiz will receive 0. If you miss more than two quizzes, you will receive 0 marks for all the missed quizzes, regardless of special consideration; in this case you should seek advice from your student support service for options (eg, withdrawing from the course).

The *supplementary exam* is only for those who, due to circumstances beyond their control, were unable to complete the final exam, or who believe that their original mark was so affected as to be significantly worse than they would score under normal circumstances. You should only apply for a supplementary exam with the understanding that, prior to knowing the outcome of the original assessment, the original mark for that assessment will be discarded. Note that original assessment marks, final exam marks, and the overall course grade, will not be released to students prior to completion of the supplementary exam. Be warned that the difficulty of the supplementary exam may exceed that of the original exam.

For this course, special consideration requests must be accompanied with a certificate from the relevant authority (eg, doctor, lawyer, etc.). This must be accompanied with a completed and signed *Professional Authority form* (https://student.unsw.edu.au/sites/all/files/upload... (https://student.unsw.edu.au/sites/all/files/uploads/group47/forms/ProfessionalAuthority.pdf)). Please ensure you take a copy of the form with you to the relevant authority, and submit the completed form with your special consideration request. Special consideration requests which do not provide this information will be deemed ineligible.

Academic Honesty and Plagiarism

Plagiarism is defined as (https://student.unsw.edu.au/what-plagiarism) *using the words or ideas of others and presenting them as your own* . UNSW treats 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:

- Learning Centre: Plagiarism and Academic Integrity (http://www.lc.unsw.edu.au/plagiarism/index.html)
- MyUNSW: Plagiarism (https://student.unsw.edu.au/plagiarism) and Academic Misconduct (https://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)
- CSE: Addendum to UNSW Plagiarism Guidelines (http://www.cse.unsw.edu.au/~chak/plagiarism/plagiarism.html)
- CSE: Yellow Form (http://www.cse.unsw.edu.au/people/studentoffice/policies/yellowform.html) (whose terms you have agreed to)

Make sure that you read and understand these. Ignorance is not accepted as an excuse for plagiarism.

Resources for Students

Class materials are available on the website. For some materials students may need to log-in. Class materials consist of lecture notes (and copies of the slides), tutorial problems, and reference materials.

The lectures are recorded and are available to students through Moodle. See the course menu on the left for more information.

There is no prescribed textbook for the course. The materials provided are sufficient to prepare you for the assessment. Additional reference materials will be provided during the course.

Reference books
Luce and Raiffa. *Games and Decisions* . Dover, 1957.
One of the classic references on game and decision theory. Middle to advanced level. Most relevant for the

latter parts of the course.
Straffin, P. *Game theory and strategy* . Mathematical Association of America, 1993.

Student information

If you have any questions regarding the administration of the course, such as questions regarding enrolment, etc., please check the FAQ (https://www.engineering.unsw.edu.au/study-with-us/current-students/student-resources/frequently-asked-questions) . You can send those questions to the relevant person by filling the corresponding online form (https://www.engineering.unsw.edu.au/study-with-us/current-students/student-resources/online-forms) .

Course Evaluation and Development

Student feedback for this course will be obtained via an electronic survey at the end of session, for the purposes of ongoing improvements to the course. Students are encouraged to provide informal feedback during the session, and to advise the lecturer in charge of any important matters that arise. Feedback is welcome, and will be received openly, positively, constructively, and thankfully.

The course has been well-received by students in previous terms.

In response to feedback from previous course offerings the course material seeks to closely emphasise the applicability and relevance of the learnings to practical engineering problems.

Resource created 9 months ago (Tuesday 08 September 2020, 03:27:28 PM), last modified 7 months ago (Friday 13 November 2020, 11:45:04 AM).

Comments

(/GSOE9210/20T3/forums/search?forum_choice=resource/52773) (/GSOE9210/20T3/forums/resource/52773)



Guyu Tian (/users/z5224120) 7 months ago (Tue Nov 24 2020 23:25:36 GMT+1100 (Australian Eastern Daylight Time)), last modified 7 months ago (Tue Nov 24 2020 23:26:30 GMT+1100 (Australian Eastern Daylight Time))

Also interested, what is the exact time window for the final?

Does our final contains MCQs only or do we have wriiten questions(short answers)? And how many of them, if there are more than 50 of them, I would love to practice my pace on calculation in advance.

And some say they can access the exact exam time through the APP on their smart phone? I don't really have a smart phone avalable r n(broken since last month, don't have extra money for a new one), and I don't find anything about the exam time on the website.

So, anyone knows where to find any infos? I just want to be prepared. at least I don't want to miss the exam by oversleeping.



Warren Chan (/users/z5315442) 7 months ago (Wed Nov 25 2020 14:44:26 GMT+1100 (Australian Eastern Daylight Time))

Hi Guyu,

If I remember correctly, the final exam should consists of only MCQs.

I think the exam time window has not been announced officially.

Regarding the "exact exam time" through the APP, the time shown on UNSW's Uni-Verse app is not the same as the exact exam time.

Always refer to the exam time announced by the lecturer.

Guyu Tian (/users/z5224120) 7 months ago (Wed Nov 25 2020 22:57:37 GMT+1100 (Australian Eastern Daylight Time))

thank you!

Warren Chan (/users/z5315442) 7 months ago (Tue Nov 24 2020 16:23:37 GMT+1100 (Australian Eastern Daylight Time))

When will the exam time of GSOE9210 be announced?

Warren Chan (/users/z5315442) 7 months ago (Thu Nov 12 2020 12:54:23 GMT+1100 (Australian Eastern Daylight Time))

Will the GSOE9210 exam be held from 1:45pm to 5:00pm (AEST) on 1st December, 2020?

I found the exam time via the UNSW Uni-Verse App, but I am not sure if that is correct.

Ziqiang Deng (/users/z5238907) 7 months ago (Thu Nov 12 2020 03:36:40 GMT+1100 (Australian Eastern Daylight Time))

Hi Victor, Would the final exam also consist of Mulitple choice question?

Warren Chan (/users/z5315442) 7 months ago (Wed Nov 11 2020 19:18:57 GMT+1100 (Australian Eastern Daylight Time))

When will we know the exam time and exam duration of the GSOE9210 final exam to be held on 1st December 2020?

Warren Chan (/users/z5315442) 8 months ago (Mon Nov 02 2020 16:50:55 GMT+1100 (Australian Eastern Daylight Time))

I have the final exam timetable, but it still does not specify when the exam will be held on 1st December, 2020, and it says that no exam materials are permitted.

Term 3 2020, Teaching Period Three - FINAL Exam Timetable

Your personal **FINAL** examination timetable for the term is shown below. The timetable is based on your enrolment record.

Please note: You **must** contact your School Office if:

- The location of an exam is listed as **internal**, or
- You are a distance mode student studying at a centre other than Kensington campus.

For further information concerning UNSW exams, please visit UNSW Examinations

Day	Date	Start Time	End Time	Course	Paper#	Location	Materials
Tuesday	01/12/2020	Afternoon: Please consult School for exam time and duration		GSOE9210:Engineering Decisions	1	Internal Exam - Consult School	No Exam Materials permitted

Warren Chan (/users/z5315442) 8 months ago (Sun Oct 25 2020 14:40:27 GMT+1100 (Australian Eastern Daylight Time))

I have some questions regarding the final exam of this course.

Will the final exam be an open-book exam?

Can we use our own graph paper to attempt the final exam?

If a calculator is allowed, should we use only UNSW-approved calculators?

If I experience any technical issues during the final exam, what should I do?



Warren Chan (/users/z5315442) 8 months ago (Wed Oct 28 2020 10:04:09 GMT+1100 (Australian Eastern Daylight Time))

My provisional exam timetable says that no exam materials are permitted for the final exam.

Day	Date	Start Time	End Time	Course	Paper#	Location	Materials
Tuesday	01/12/2020	Afternoon: Please consult School for exam time and duration		GSOE9210:Engineering Decisions	1		No Exam Materials permitted

Does that mean the final exam is closed-book?



Warren Chan (/users/z5315442) 8 months ago (Wed Oct 28 2020 11:20:31 GMT+1100 (Australian Eastern Daylight Time))

In addition, when will the final exam start and end on 1st December 2020?



Victor Jauregui (/users/z9900583) 8 months ago (Tue Oct 27 2020 18:01:02 GMT+1100 (Australian Eastern Daylight Time))

All good questions. The exam details haven't been finalised yet, but the answer is 'yes'.

The university will have a say on some of these issues, so it's hard for me to be more precise.

If there are issues outside of your control (having taken adequate precautions), special consideration will be available. The course outline has more details about special consideration eligibility.



Jiasheng Yang (/users/z5186822) 9 months ago (Mon Sep 14 2020 19:54:06 GMT+1000 (Australian Eastern Standard Time)), last modified 9 months ago (Tue Sep 15 2020 11:06:12 GMT+1000 (Australian Eastern Standard Time))

Hi Victor,

I am a bit curious about the work load of this course. Is it like that we would be expected to watch several videos before lectures and attend two two-hour lecture in each week?



Warren Chan (/users/z5315442) 9 months ago (Tue Sep 15 2020 20:23:51 GMT+1000 (Australian Eastern Standard Time))

Thank you for raising this question, Jiasheng!



Victor Jauregui (/users/z9900583) 9 months ago (Tue Sep 15 2020 10:58:06 GMT+1000 (Australian Eastern Standard Time))

The videos are intended to replace lectures. The plan is for the scheduled class times on Thursdays and Fridays to be optional tutorial-like sessions where I will work through any topics raised during the week and maybe go over some of the problems in the exercise

sets. The format of those isn't fixed; it might take some experimentation to see what works best.



Jiasheng Yang (/users/z5186822) 9 months ago (Tue Sep 15 2020 11:09:16 GMT+1000 (Australian Eastern Standard Time))

Cool! Thank you for your reply.

Xuhong Luo (/users/z5182016) 9 months ago (Mon Sep 14 2020 17:59:31 GMT+1000 (Australian Eastern Standard Time))

I've noticed that there are two different sets of assessments mentioned in the Course Outline:

In the "Assessment" part:

"The in-course assessment contributes 40% of the final mark; it consists of four online quizzes each worth 10%. The final exam is worth the remaining 60%."

And in the "Course Schedule" part:

"Assessment for this course consists of a mid-term paper and a final exam. The dates and times of the mid-term paper will be announced closer to the date."

Could you please advise us that which one is the exact one that would be implemented in this term?



Victor Jauregui (/users/z9900583) 9 months ago (Tue Sep 15 2020 10:52:08 GMT+1000 (Australian Eastern Standard Time))

Well spotted, Luo Xuhong. The course schedule information hadn't been updated to reflect the online mode of delivery. It's been updated now. To clarify, assessment will consists of four (4) online quizzes and a final exam.

Xuhong Luo (/users/z5182016) 9 months ago (Tue Sep 15 2020 19:22:38 GMT+1000 (Australian Eastern Standard Time))

Hi, Victor,

Thanks for the reply and the clarification. By the way, I really aplologize for the making the last post in an inappropriate way. I totally forgot about that!

Expecting to have a nice experience in this course!

Regards,

Xuhong