VCUG3001/VCPG6001/LAWS4001
Unravelling Complexity

Semester 1, 2018

Course Guide and Outline
v2018.3

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Note: this document will be supplemented by a detailed assessment guide and course schedule
1. Overview
What the course is about

“Universities serve to make students think: to resolve problems by argument supported by evidence; not to be dismayed by complexity, but bold in unravelling it.”

— What are universities for? by Geoffrey Boulton and Colin Lucas

Unravelling Complexity takes up the challenge of being bold in unravelling complexity by offering later-year students from any part of the ANU the opportunity to explore a series of complex issues. The connections between economic, historical, social, legal, scientific, engineering, environmental and moral dimensions of complex problems will be explored.

Academics and professionals will share their experience and provide case studies of complex problem solving in action through weekly seminars. Students will work in an interdisciplinary team to unravel a complex issue and run a learning activity on this problem. Students will also work in an academic environment to provide peer review on student work and to enhance their own research project.

Grand Challenges
The ANU Grand Challenges Scheme funds transformative research with the potential to radically change our understanding of, and responses to, the world’s most intractable problems. It’s an ambitious and broad reaching initiative designed to fund long-term programs of research not typically supported by external competitive funding.

This year we will hear from ANU’s leading researchers who led proposals in the 2017 Grand Challenge round – from migration to climate change, food security to personalised health. Students will work with these researchers to deliver a tutorial on the topic for the rest of the class.
## 2. Indicative Schedule

This schedule will be superseded by a detailed schedule

### Table 1: Indicative Schedule

<table>
<thead>
<tr>
<th>Wk</th>
<th>Tuesday (Seminar) 12-2</th>
<th>Thursday (Seminar) 12-2</th>
<th>Assessment/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frank Fenner Seminar Room</td>
<td>Forestry FSTY 102</td>
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### PART I: Setting the scene, building the toolkit

1. Classes focussed on introduction to Complexity.
   Mainly guest speakers for 90 minutes
2. Students will begin to interview chosen Grand Challenge topic academics
3. Toolkit development

### PART II: Grand Challenges

5. Grand Challenge Guest Panels with Student-Run Facilitations
6. Group facilitations

7. Time for rest, relaxation

8. Grand Challenge Guest Panels with Student-Run Facilitations
9. Group facilitations

### PART III: Reflections

11. Portfolio feedback/development and Course wrap-up
12. Individual Portfolio

### Class locations

Seminar (Tuesday) 12pm-2pm Frank Fenner Seminar Room (ground floor) [map](#)
Seminar (Thursday) 12pm-2pm Forestry FSTY 102 (first floor) [map](#)

Chris' office is in Ian Ross Building [31], up the spiral staircase Rm R210 [map](#)

### Academic Interviews

To prepare for Part II of the course, each group will interview a range of academics engaging with complex problems. These will be at times convenient for you and the academic.
3. Indicative Assessment

The assessment is designed to enable you to be active and creative in your learning

Update: 19-Feb.

The assessment table below has been simplified to not cause confusion with the detailed table available in the Assessment Guide. No major details have changed.

<table>
<thead>
<tr>
<th>Table 2: Indicative Assessment Summary</th>
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<tbody>
<tr>
<td>Complexity Primer (25%)</td>
</tr>
<tr>
<td>inc. Draft, Peer Review, Presentation, Summary and Peer Critique</td>
</tr>
<tr>
<td><strong>Grand Challenge Activity Co-Facilitation (30%)</strong></td>
</tr>
<tr>
<td>inc. Co-Facilitation, Secret Plan and Summary</td>
</tr>
<tr>
<td><strong>Research Portfolio (45%)</strong></td>
</tr>
<tr>
<td>inc. Draft, Presentation and Final Artefact</td>
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Creativity in assessment

Although there are guidelines in the Assessment Guide, you are absolutely encouraged to be creative in your approach, presentation or methods. Please talk to your tutor or Chris about how this might look.

**LAWS4001 Variation**

Law students undertaking LAWS4001 must explore a complex issue that has a strong legal element in their Research Portfolio, but are still encouraged to apply perspectives from other topics the course to this issue.

**VCPG6001 Variation**

Postgraduate students will be asked to complete a more intensively researched Research Portfolio.
4. Course Administration

The nitty-gritty information about the course

Contact
The course convener is Chris Browne from the Research School of Engineering.
E: Chris.Browne@anu.edu.au
W: http://users.cecs.anu.edu.au/~u3951377/
I'm always happy to meet any student, any time, just send me an email from your ANU address.
Your tutors can be contacted via their email addresses, shown in Wattle, but please make use of the time that you have face-to-face with them as the main point of contact - their time is precious (as everyone's is!)

Learning Outcomes
LO1 Identify and generalise archetypical behaviours in complex problems
LO2 Provide and situate disciplinary perspectives and methodologies in an interdisciplinary team
LO3 Analyse and construct arguments from multiple perspectives, supported by evidence and with intellectual independence
LO4 Reflect critically on theory from the course by connecting personal experiences and/or real-world situations
LO5 Design, research and defend a learning portfolio unravelling a complex/(legal) problem

Learning Activities
Face-to-face activities
There are two full-class seminars a week. These are scheduled for 2 hours each, but we will aim to keep to ~90 minutes of substantive content with a short break.
In Part I of the course, these will be seminars run by Chris & guests. In Part II, these will be Grand Challenge panels with activities run by students. In Part III, we’ll workshop your final portfolios.

Academic Interviews
To support the Student-run sessions, we’re asking you to interview some of the great academics at ANU about complexity. You will need to meet with your Grand Challenge academics before your facilitation.

Online activities
Part of the Student-run Workshop is to build a toolkit entry on the course Wattle page.

Expected Workload
You are expected to engage in the course and the materials for approximately 10 hours per week, made up of:
• Face-to-face activities
  4 hours per week. Seminars will be recorded when possible, but the rooms we are in do not have recording facilities, and many guests prefer to speak under the Chatham House rule.
• Individual research and reflection
  3 hours per week is expected, to cover the course material and assessment tasks
• Group project work
  at least 4-6 hours is expected to prepare for the Grand Challenge facilitation, from weeks 5-10
Additional time will be required for group work and other independent study leading up to assessment items.
Extensions, penalties and behaviour

As this course is run out of the Research School of Engineering, the relevant rules around word limits, late penalties and special consideration will be applied, in line with the university-wide policies. Reasonable requests for extensions, special consideration and accessibility will be considered with courteous regard to the due dates. If you have any potential concerns, please talk to Chris (very) early.

Students are bound to the Code of Practice for Student Academic Integrity. This includes provisions and directions on issues such as academic integrity, plagiarism and academic misconduct. All students should be familiar with the Code.

Late submission of assessment tasks without an extension are penalised at the rate of 5% of the possible marks available per working day or part thereof. Late submission of assessment tasks is not accepted after 10 working days after the due date, or on or after the date specified in the course outline for the return of the assessment item. (A complex problem?)

Feedback, comments & marks

Feedback is widely misunderstood concept in education. I see feedback as a systems process that drives behaviour (formative feedback), rather than being the result of assessed work (summative feedback).

In this course, there are many formal and informal processes to collect formative feedback to help submit the best work you can. These include regular opportunities with your tutor and with Chris for specific feedback, and most assessment items are staged so that you can receive feedback as you go. You should also make the most of informal feedback, such as through other members of your group and former students.

When marks are returned, they will be accompanied with minimal summative feedback to justify the mark. You are welcome to ask your marker for more feedback if you would like or need.

Group & peer evaluation/markings

Peer evaluation and comments are a part of group work: in this case, the Group Project and Tutorial Facilitation.

On occasion, not all members of a group contribute equally to the the work required, or not all members have the same expectations of standards. There is a moderation process available to provide recognition when required:

Tutorial Co-facilitation (voluntary) talk to your tutor upon the completion of your tutorial if your group requires this
Group Project (required) this will occur in the final group presentation tutorial. Moderation will apply to all group project assessment, unless otherwise stated by the group (eg, person A helped a lot during semester, but we didn’t see them whilst preparing the final reports)

The course convener will override group evaluation if deemed necessary, in consultation with your tutor. This highlights the importance of working well both as a group, and within your group.

Absences

It is expected that you will attend all tutorials - they are the most important part of the course. Tutorials - especially the ones run by your peers - are VERY difficult with low attendance, so please ensure that you can attend throughout the semester.

Marking Issues

If you have a problem with marks for assessment items, there is a process that you can follow to come to a resolution on the issue. It is expected that this process would be followed relatively shortly after receiving your grade:

1. talk to the marker (see Table 2)
2. your marker will provide further comments or clarification if needed
3. if you are still unhappy with the marker’s response, you can:
   • ask the course convener to re-mark the assessment - this requires a couple of dot points outlining how your work should be seen against the marking criteria
   • ask the course convener if you can resubmit (typically reserved for failed Individual Research Papers only) - this requires negotiation with the course convener
4. if you are unhappy with the course convener’s response, you can appeal to the Associate Dean (Academic), in consultation with the course convener.
Examiner's Discretion

The course convener has examiner’s discretion on your final grade. In principle, no discretion will be exercised unless you are close to a grade boundary - for example, you get 69.75% as a final grade. If you are in this scenario, the course convener will review your individual assessment items and make a decision based on these data. The course convener’s decision is final, though you are entitled to appeal your grade according to ANU’s policies.

Course improvement

There will be opportunities to provide feedback throughout the course to Chris or your tutors, typically through tutorials.

One of the key formal ways students have to provide feedback is through Student Experience of Learning Support (SELS) surveys. The feedback given in these surveys is anonymous and provides the Colleges, University Education Committee and Academic Board with opportunities to recognise excellent teaching, and opportunities for improvement.

For more information on student surveys at ANU and reports on the feedback provided on ANU courses, go to:

http://unistats.anu.edu.au/surveys/selt/students/ and
http://unistats.anu.edu.au/surveys/selt/results/learning/

Policies for studying at ANU

ANU has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University’s academic standards, and implement them.

Students are expected to have read the Student Academic Integrity Policy before the commencement of their course.

You can find the University’s education policies and an explanatory glossary at:

http://policies.anu.edu.au/

Student Assessment (Coursework)

Student Surveys and Evaluations

Turnitin submissions

The ANU is using Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University’s approach to managing Academic Integrity. For additional information regarding Turnitin please visit the ANU Online website. Students may choose not to submit assessment items through Turnitin. In this instance you will be required to submit, alongside the assessment item itself, copies of all references included in the assessment item.

Suggested reading

Complexity is a fascinating area of study. Many students find that you start seeing complexity everywhere.

There is no prescribed textbook for this course. You should be able to complete this course using the materials and selected readings made available through the Resources Directory.

- Bammer, Gabriele and Michael Smithson 2008, Uncertainty and risk: multidisciplinary perspectives, Earthscan
  Recommended: Chapters 2 and 26
- Bar-Yam, Yaneer 2004, Making things work: solving complex problems in a complex world, NECSI Knowledge Press Recommended: Overview, Chapter 1 and conclusion
- Brown, Valerie A., John A. Harris, Jacqueline Y Russell 2010, Tackling wicked problems through the transdisciplinary imagination, Earthscan
  Recommended: Chapters 1 and 2
- Harris, Graham 2007, Seeking sustainability in an age of complexity, Cambridge University Press
  Recommended: Preamble, chapters 1 and 2
- Mitchell, Melanie 2009 Complexity a guided tour, Oxford University Press
  Recommended: Preface, chapter 1
- Lineweaver, Charley, 2013, Complexity and the Arrow of Time.
Changelog

2018.1
3-Feb - Initial document

2018.2
8-Feb - Assessment tweaks / fix calculation error

2018.3
19-Feb - Simplified assessment table - moved to Assessment Guide.