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COMP3030J Software Engineering Project

Lecture 1 – Introduction

Prof Catherine Mooney

UCD School of Computer Science

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Overview

Introduction

Module Description

Group Work

Weekly Update

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- **Lecturer:** Prof Catherine Mooney (catherine.mooney@ucd.ie)

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Assisting with lecturing and delivery of teaching material:



- Dr Lan Wei (lan.wei@ucd.ie)
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- Mercy Edoho (mercy.edoho@ucdconnect.ie)

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CS Moodle

- https://csmoodle.ucd.ie/moodle/course/view.php?id=1093
- Login with your ucdconnect email address
- The enrollment key is COMP3030J_2025

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Teaching Assistants

- TAs will be assigned to your groups.
- We will announce the TAs soon.
- There is a QR code on Moodle to join the WeChat group for COMP3030J.
- Please use this WeChat group to communicate with TAs and people in your class outside of your group.

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A little bit about Catherine

- 2009 PhD Computer Science (Computational Biology), UCD
- 2009–2013: Post-doctoral researcher – UCD
- 2013–2014: Senior post-doctoral researcher – TU Dublin
- 2014–2016: Research Fellow – Royal College of Surgeons in Ireland
- 2016: Assistant Professor, UCD School of Computer Science
- 2021: Associate Professor, UCD School of Computer Science
- 2024: Professor, UCD School of Computer Science

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Research Interests

- The application of **machine learning** to solve problems in **biology** and **medicine**
- Computational Biology/Bioinformatics/Medical Data Science/Health Informatics
- **Google Scholar:** `https://scholar.google.com/citations?user=_OdojvIAAAAJ&hl=en`
- **Research Website:** `https://lisda.ucd.ie/`

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Module Description

This module emphasises the development of communication skills, teamwork, problem-solving, creativity, work ethic, interpersonal skills and time management skills centred around a team-based software development project.

These skills are those that employers and grad schools are looking for most!

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Learning outcomes

Upon completion of this module, the successful student will be able to...

- Apply the theory and fundamental principles of Software Engineering in the context of a group project.
- Design and create a solution given a problem specification, using appropriate development methodologies.
- Situate their work within the context of the profession of Software Engineering through appropriate reports, presentations and demonstrations.
- Communicate the outputs of their work to technical and non-technical audiences.
- Engage in self-directed (individual and/or group) professional development through research.
- Apply effective strategies for working in teams including communication skills, teamwork, problem-solving, creativity, work ethic, interpersonal skills and time management skills.

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Group formation

- In previous years students were concerned when groups were formed randomly, or by GPA. These approaches do have advantages.
- However, this year you can form your groups!
- The members of your group will have different strengths and weaknesses, you need to try to use these to the advantage of the group by working together.

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How to deal with free-riders?

- Teamwork – team agreement
- Conflict resolution (more details next week)
- 20% teamwork and participation grade – weekly update, engagement throughout, problem-solving, teamwork, feedback from TAs, ...

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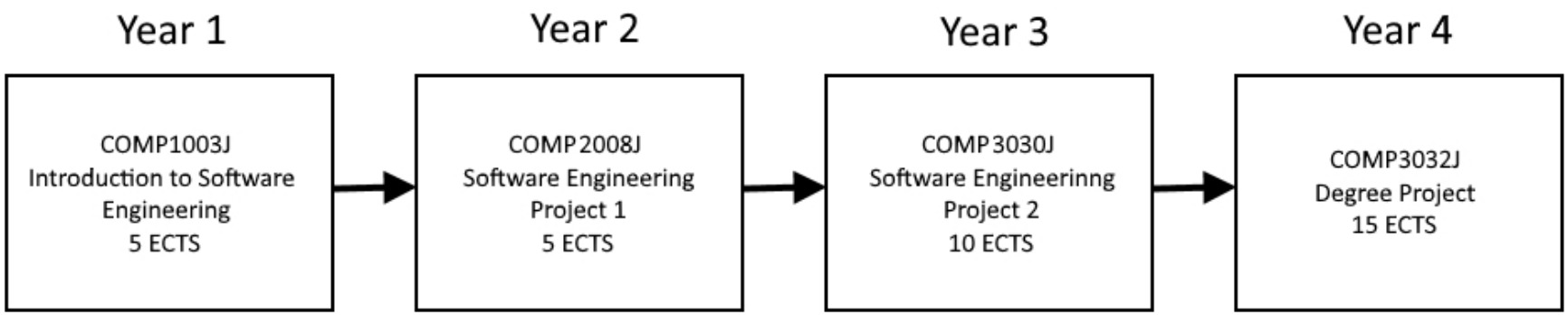
Module Structure



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Software Engineering Project

- This year's project will be in some ways similar to your Stage 2 project, except this year the project is 10 credits (but still only one semester)
- This is an important module, both in terms of content and as it is 'worth' two normal modules
- You should be working twice as hard as in other modules
- If you feel like your group is falling behind, let us know

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Software Engineering Project

- This project will be difficult but in the end it can be very rewarding
- Our job is to help coordinate, not to help with specifics of code, implementation, and other details - like in a real workplace, this is a team issue!
- Part of your learning is taking skills you have already learned in other modules and combining them here to make a software project that solves the problem given
- A lot of independent time working and researching is required by you

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Software Engineering Project

- This module gives you a lot of choice and freedom, but that comes at a cost: hard work and responsibility!
- You will be doing progress reports and check-ins along the way, so you should always be aware of your group's progress
- If you ever have any concerns, just ask
- If you feel that your group is falling behind please talk to us

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Teaching Assistants

- Your TAs play an important role in guiding and advising you as you work on your project
- You should be sure to make good use of the TAs and to let them see that your approach to your project work is organised and competent
- Do not come to the TAs with every little problem you have, try to work things out yourself as a team
- This will allow you to have an informed discussion with the TAs about the problem
- At the same time, if you are having serious problems with your project and progress is halted, be sure to let the TAs know as soon as possible

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Teaching Assistants

- TAs can provide technical help and guidance on the project process and progress
- They cannot do the work for you but may be able to help you find a solution to specific issues you are having

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- **Moodle:** I will make lecture materials available on Moodle before the lecture
- Required Reading: Assigned Research Papers and Materials on Moodle

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Recommended Reading

Cooperative Software Development
by Professor Amy J. Ko, University of Washington, Seattle

An excellent book on software development focuses on the many ways that software engineering work is cognitive, social, and organizational.

`https://faculty.washington.edu/ajko/books/cooperative-software-development/`

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Assessment

- **Final Exam:** There will be no final exam!

- **Continuous Assessment/Assignment:** 100%
- Each group will get a grade – I will presume that all members of the group have contributed equally unless flagged early in the semester (I will give more guidelines on conflict resolution next week)

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Assessment

- **Mid-semester progress assessment (20%)** A 4-minute demonstration of group progress through Week 7 (submitted Week 8): What have you done? What do you plan to do? What challenges have you encountered so far and how will you overcome them? We will also look at your progress on the Overleaf report.
- This will be presented live, in front of the class.
- I will provide more details later in the semester.

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Assessment

- **Overleaf report (20%)** We will set up an Overleaf document for each group.
- This will also include System and User documentation and instructions for testing the software.
- Each student should write a dedicated section detailing their part of the project.
- I will provide more details later in the semester.

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Assessment

- **Mid-semester demonstration (20%)** 4 minute video (max)
- Each student must speak in the demonstration.
- The demonstration should provide a coherent overview of the project in total demonstrating how the software has met the project requirements and the team members' roles.
- This will be presented live in front of the class.
- I will provide more details later in the semester.

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Assessment

- **Teamwork and Participation (20%)** Observation of individual contributions of members through Overleaf, weekly updates, contribution to the forum, direct feedback from students/team members and TAs, conflict resolution, and all other interactions.

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Assessment

- **Software testing (20%)** We will test the software at the end of the semester.
- As you develop your software, think about how we will access it for testing.
- We must be able to test it remotely i.e. from Ireland.
- You must provide FULL instructions for accessing and navigating your software.
- Instructions will be provided in your Overleaf report.
- All logins must be supplied.

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Assessment

- It has come to our attention that in previous years some groups may have received external assistance (possibly paid for) in terms of video production or other aspects of their work.
- This raises serious ethical, fairness, and academic integrity issues.
- Receiving external assistance with your work that is not attributed is considered plagiarism.
- Plagiarism is a serious academic offence.

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Groups

- Form your groups now
- Maximum 6, Minimum 5 students per group
- Please complete the spreadsheet which is on CS Moodle.

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Project Groups

- Set up a WeChat group for your group members
- Introduce yourselves to each other
- Think of a name for your group

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Project Groups

- TAs will be added to your Overleaf projects
- You should invite your TA to join your WeChat group
- TAs will be announced once we have the information from BDIC

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Project Groups

- This is a “Problem Based Learning” module
- One of the goals of this module is to encourage you to work in groups and solve problems together
- One of our assessment criteria is observing how well you work together to solve problems together
- Are you resourceful and innovative?

Problem-based learning

"**Problem-based learning** (PBL) is a student-centred approach in which students learn about a subject by working in groups to solve an open-ended problem."
`https://teaching.cornell.edu/teaching-resources/engaging-students/problem-based-learning`

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What does this mean?

In your group, you should:

- Carefully examine the problem (see “Problem Statement” on Moodle)
- Explore what you already know related to solving this problem
- Determine what you need to learn and where you can acquire the information and tools necessary to solve the problem
- Evaluate possible ways to implement a solution
- Implement your software solution
- Make your video demo of the project
- Write your reports

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Project Groups

What should you do if you have a problem?

- Try to solve any problems in your WeChat group first
- If you cannot solve a problem try asking the big WeChat group
- If you still can't solve the problem you can ask your TA
- Finally, if your TA can't answer the problem they can talk to me, or you can email me directly

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Write Your Team Agreement

- You are required to produce a team agreement in Week 1 of the project
- Activity – read the “Team Agreement Example” (on Moodle) and then write your Team Agreement
- The team agreement should cover the ground rules for communication, participation, meetings, conflicts and decision-making
- Upload this to Moodle by midnight on Friday at the end of Week 1. There is a link on CS Moodle for this.

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Questions for you to discuss with your group

- What type of team are you going to be?
- What are the advantages of working in a team?
- What are the challenges?
- What roles are you going to have?

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Suggested team roles

While individuals will take a lead role in a certain area of the project, all team members are expected to contribute to all aspects of the design and development of the project. (See “Agile software engineering Team Roles” on Moodle)

- Leading Group
- Customer Group
- Code Group
- Maintenance Group

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Weekly Update

- **You must complete your "Weekly Update" every week starting this week and upload it to Moodle by midnight on Friday at the end of the Week**
- Your Weekly Update should be used as the agenda for your weekly meetings with your TAs
- If you have anything important (conflicts, free-riders, etc.) you must mention this in your Weekly Update and raise this with your TAs
- Weekly Updates are also for you to track your progress and to help you plan for the future

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Any Questions? Email me...
catherine.mooney@ucd.ie

- If you email me please use your UCD connect email address.
- Please put "Question about COMP3030J" in the subject line.
- Please put the following in your email template:
  Dear Prof Catherine,
  My name is X (UCD Student number X). I am a member of Group X.
  (Explain what your questions are here...)
  Many thanks,
  Your Name