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COMP3030J Software Engineering Project

Lecture 1 – Introduction

Dr Catherine Mooney and Dr Brett Becker

February 24, 2020

UCD School of Computer Science
Ranked  *in Ireland, according to QS World University Rankings 2017*

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Overview

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- **Lecturer:** Catherine Mooney (catherine.mooney@ucd.ie)
- **Lecturer:** Brett Becker (brett.becker@ucd.ie)
- **Lecture Times:** Mondays @ 09:55 – 11:30 (This will be a "Live WeChat" with your TAs until we can come to Beijing)
- **Extra Times:** We also have scheduled Tuesdays and Thursdays from 18:00-19:00. You are guaranteed to not have other commitments at this time. We will not be using these sessions to start but may as the semester goes on. For now we suggest that you use these times for group meetings and WeChat sessions.

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- Please contact us using the forum on Moodle (we have set one up for each group).
- Email is only for questions that require one-on-one discussion.
- If you do email us use your UCD connect email address.
- Please put "Question about COMP3030J" in the subject line.
- Please put the following in your email template:
  Dear Dr Catherine and Dr Brett,
  My name is xxx (UCD Student number xxx). I am a member of Group X.
  (Explain what your questions are here...)
  Many thanks,
  Your Name

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Teaching Assistants

- Yuhan Du: Head TA
- We have many other TAs that will be assigned to individual gropus. We will announce the groups and TA assignments soon.

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A little bit about Catherine

- PhD Computer Science, University College Dublin
  Protein structure prediction using bidirectional recurrent neural networks (BRNN)
- 2009–2013: Post-doctoral researcher in Clinical Bioinformatics – School of Medicine, UCD
- 2013–2014: Senior post-doctoral researcher – School of Physics, Dublin Institute of Technology
- 2014–2016: Research Fellow – Department of Physiology & Medical Physics, Royal College of Surgeons in Ireland
- Assistant Professor, UCD School of Computer Science since 2016

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Research Interests

- The application of **machine learning** to solve problems in **biology** and **medicine** is my research area
- Machine Learning – mostly neural networks
- Computational Biology/Bioinformatics/Medical Data Science/Health Informatics
- **Google Scholar:** `https://scholar.google.com/citations?user=_OdojvIAAAAJ&hl=en`

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Google Scholar

Catherine Mooney

FOLLOWING

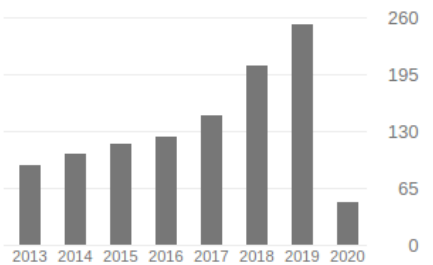
Assistant Professor, School of Computer Science, University College Dublin
Verified email at ucd.ie

Machine learning computational biology bioinformatics biomarkers computational medicine

TITLE	CITED BY	YEAR
Accurate prediction of protein secondary structure and solvent accessibility by consensus combiners of sequence and structure information G Pollastri, AJM Martin, C Mooney, A Vullo BMC bioinformatics 8 (1), 201	133	2007
Towards the improved discovery and design of functional peptides: common features of diverse classes permit generalized prediction of bioactivity C Mooney, NJ Haslam, G Pollastri, DC Shields PloS one 7 (10)	127	2012

Cited by VIEW ALL

	All	Since 2015
Citations	1285	897
h-index	21	19
i10-index	26	25



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A little bit about Brett

- PhD Computer Science, University College Dublin
  Parallel and High Performance Computing
- Also MSc Computational Science, MA Higher Education BA, Physics, BA Computer Science
- Main research area: Computer Science Education
- www.brettbecker.com
- Assistant Professor, UCD School of Computer Science since 2015

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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.

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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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Module Feedback

You will get an email to fill this out later in the semester. We would appreciate it if you fill it out. We DO take feedback into account every year!

This should take approximately 3 minutes to complete. Click on the module code above to see details of this module. Your responses will remain anonymous and the results will not be made available to your lecturer or Head of School until after this semester's examination results have been issued.

Please complete all questions.

1	**I have a better understanding of the subject after completing this module.**	○Strongly Agree ○Agree ○Not Sure ○Disagree ○Strongly Disagree
2	**The assessments to date were relevant to the work of the module.**	○Strongly Agree ○Agree ○Not Sure ○Disagree ○Strongly Disagree
3	**I achieved the learning outcomes for this module.**	○Strongly Agree ○Agree ○Not Sure ○Disagree ○Strongly Disagree
4	**The teaching on this module supported my learning.**	○Strongly Agree ○Agree ○Not Sure ○Disagree ○Strongly Disagree
5	**Overall I am satisfied with this module.**	○Strongly Agree ○Agree ○Not Sure ○Disagree ○Strongly Disagree

Your comments are very important and valued by lecturers. Please ensure that neither the language nor content will cause personal offense to any individual lecturer.

6	**Identify up to three aspects of the module that most helped your learning**	
7	**Suggest up to three changes to the module that would enhance your learning.**	

Thank you for your feedback. Click SUBMIT below if you are happy with your responses.

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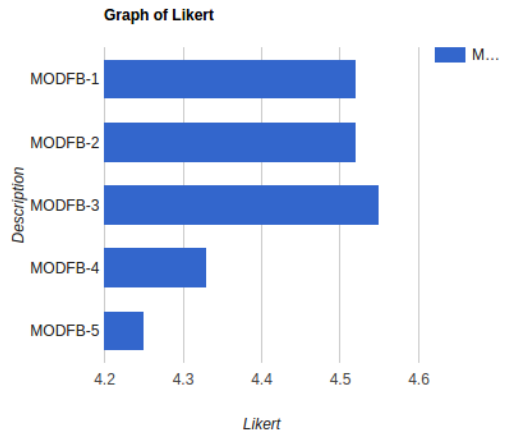
Module Feedback from 2018/2019

We want to make this better...



			Likert		% of Total				
Description	Question Text	Times Answered	Mean	Standard Deviation	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Core									
MODFB-1	I have a better understanding of the subject after completing this module.	64	4.52	.73	62.50	29.69	4.69	3.13	
MODFB-2	The assessments to date were relevant to the work of the module	64	4.52	.64	59.38	32.81	7.81		
MODFB-3	I achieved the learning outcomes for this module	64	4.55	.62	60.94	32.81	6.25		
MODFB-4	The teaching on this module supported my learning	64	4.33	.78	48.44	39.06	9.38	3.13	
MODFB-5	Overall I am satisfied with this module	64	4.25	.91	46.88	39.06	7.81	4.69	1.56

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Module Feedback

We have looked at the feedback from last year:

- Identify up to three aspects of the module that most helped your learning
- Suggest up to three changes to the module that would enhance your learning

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Positive Feedback

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How have we changed module in response to feedback?

Biggest concerns that we have tried to address:

- Group formation
- Free-riders
- Lack of structure

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Group formation

- Last year students complained that we formed the groups randomly
- This year groups have been formed so that the average GPA across the groups is similar
- 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)
- 25% team work grade – engagement throughout, problem solving, teamwork, feedback from TAs, ...

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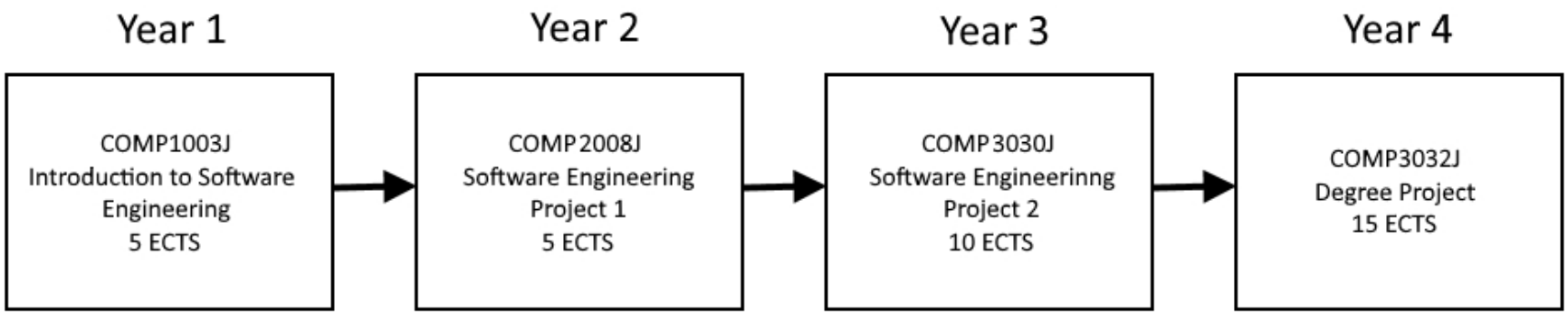
Structure



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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 will 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 at the end it can be very rewarding
- Our job is to help coordinate, not to help with specifics of code, implementation, and other details
- 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
- Work with your TAs during the Monday time slot and the Tuesday / Thursday time slots if required.

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Software Engineering Project

- This module gives you a lot of choice and freedom. You can solve the problem any way you want, 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 your 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:** We will make lecture materials available on Moodle on Sunday
- Recommended Reading: Software Engineering (10th Edition) by Sommerville (2015)
- Required Reading: Assigned Research Papers and Materials on Moodle

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Assessment

- **Final Exam:** There will be no final exam!!
- **Continuous Assessment/Assignment:** 100%
- Each group will get a grade. – we will presume that all members of the group have contributed equally, unless flagged early in semester (we will give more guidelines on conflict resolution next week)

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Assessment

- **Overleaf report (25%)** We will set you up with an account and a template in Overleaf (overleaf.com). Each student will have a dedicated section of the report to be authored exclusively by them, detailing their part of the project.
- **Presentation video (25%)** Each student will record 4 minutes (strict). These should be combined into one group video. This video should provide a coherent overview of the project, demonstrating how the software was developed and how it has met the project requirements.

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Assessment

- **Teamwork (25%)** We will observe individual contributions of members through Github and Overleaf, contribution to the forum and direct feedback from students if there is an issue.
- **Software testing (25%)** We will test the software developed. It must be a web-based solution. Each group must provide FULL instructions on how to access and navigate the solution keeping in mind that we may be in Ireland. Instructions should be provided in the Overleaf report.

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Moodle Enrolment

- https://csmoodle.ucd.ie
  Log in with your UCD username and password
- Find COMP3030J Software Engineering Project 2019-20
- Enrolment key: COMP3030J2020

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Groups

- approximately 90 students
- 16 groups of 5-6 students each.

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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 joining teams on each group's moodle forum.
- TAs will be added to group WeChat groups
- TAs will be added to your Overleaf projects

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Project Groups

- Jason (Xiaobo Liu): Groups 1 - 4
- Xihao: Groups 5 - 8
- Anaa: Groups 9 - 12
- Rehman: Groups 13 - 16

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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 to solve problems together
- One of our assessment criteria is observing how well you work together to solve problems together
- Are you resourceful? Are you innovative?

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Project Groups

- Try to solve any problems in your own 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, you can put the questions on your Weekly_update and Brett and Catherine will discuss them with you

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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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Write Your Team Agreement

- You are required to produce a team agreement in week one of the project
- Activity – read Team Agreement Example (TeamAgreementExample.pdf) and then write your own Team Agreement
- The team agreement should cover the ground rules for communication, participation, meetings, conflicts and decision making
- Upload this to your group's forum on Moodle by midnight on Friday 28th February

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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.pdf)

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

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Work Packages and Gantt chart

Work_Package_Template.docx and Gantt_Worksheet.xlsx

- Each student will write their own work package
- But they should all ‘fit’ together
- Each work package should be 2-3 pages
- Each work package describes the work you will do, and how you will work with your group, and how your work will contribute to your group project
- The actual work in each work package is managed by an individual student but can be implemented by more than just the manager
- The manager is responsible for the delivery of the work package
- Upload these to your group forum on Moodle by midnight on Friday 28th

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Problem Statement

Read the problem statement:
Problem_Statement.pdf

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Where is your project in terms of the customer concerns?

- As you know, your projects need to meet minimum requirements
- How are your projects going to meet these customer requirements?
- What work needs to be done to meet these requirements?
- You must complete your Weekly_update.doc every week and upload this to your group forum on Moodle by midnight on Monday every week
- Brett and Catherine will review your Weekly Update and give you feedback