Orientation Meeting
MSc/PGDip in Computer Science

Augmented and Virtual Reality
Data Science
Intelligent Systems
Future Network Systems

Dr. John Dingliana - Course Director
School of Computer Science and Statistics [SCSS]
Email: John.Dingliana@tcd.ie
Approx. 45 mins with Questions (Q&A) at end.

Recorded version and Slides of this session will be posted online
[Additional Q&A sessions next week for those who can't attend].

Please remain muted until Q&A segment

For Q&A session, kindly 'raise hand' if you have a question

You may enter text questions in the chat box: will get to this if time permits (if not we will follow up with you later)
What to get from this talk

- Course objectives, structure and timeline
- Assessment Regulations
- Where to go for help
- Facilities and Resources
- Special arrangements under Covid-19
- Getting ready for first week of class
Strand Leaders:
- Augmented and Virtual Reality: Michael Manzke [Michael.Manzke@scss.tcd.ie]
- Data Science: Mimi Zhang [Mimi.Zhang@tcd.ie]
- Future Networked Systems: Melanie Bouroche [Melanie.Bouroche@scss.tcd.ie]
- Intelligent Systems: Gaye Stephens [Gaye.Stephens@tcd.ie]

Course Director: John Dingliana [John.Dingliana@tcd.ie]

SCSS Director of Postgraduate Teaching and Learning: Owen Conlan [Owen.Conlan@scss.tcd.ie]

MSc CS Course Administrator: Sarah-Jade Evenden [evendens@tcd.ie | teaching-unit@scss.tcd.ie]

Technical Help – School Resources: help@scss.tcd.ie
Important Information

Internal Course Web Page
https://teaching.scss.tcd.ie/msc-in-computer-science/
• Course/Module Information
• These Slides

Course Handbook [also in above]
https://www.scss.tcd.ie/postgraduate/msc-

TCD Calendar Part III
https://www.tcd.ie/calendar/graduate-studies-higher-degrees/
• Formal College Regulations (including this course)
MSc and PGDip Degrees

Level 9, National Framework of Qualifications

- knowledge and comprehension **beyond the Bachelor’s level and at the forefront of a field of learning**
- **critical awareness of current problems** and new insights, new tools and new processes within their field of learning
- ability to **apply knowledge and critical awareness in the context of research** in broader or multidisciplinary areas related to their fields of study
- ability to **integrate knowledge** and handle complexity, to formulate judgements with incomplete or limited information
- ability to **lead or initiate activity**, and take responsibility for the intellectual activities of individuals or groups
- ability to **communicate their conclusions, and knowledge, rationale and processes underpinning these**, to specialist and non-specialist audiences
- **learning skills to continue to study** in a self-directed or autonomous manner.

http://www.nfq-qqi.com/
MSc / PGDip in Computer Science

The Year Ahead

28 SEPTEMBER

Semester 1
(30 ECTS)
Taught Modules

1 February

Semester 2
(30 ECTS)
Taught Modules

May

Summer Research Period
(30 ECTS)

31 August

30 ECTS (European Credit Transfer Systems)
~ 600 to 750 hours of Work

N.B. 90 ECTS must be from approved modules for the course.
Course Content

Core Modules:
Compulsory to ALL strands

Strand Modules:
Compulsory to specific strand

Electives: Options:
Shared pool across all strands

<table>
<thead>
<tr>
<th>Module</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS7CS4 Machine Learning</td>
<td>5 ECTS</td>
</tr>
<tr>
<td>CS7CS6 Research and Innovation</td>
<td>5 ECTS</td>
</tr>
<tr>
<td>CS7CS5 Dissertation</td>
<td>30 ECTS</td>
</tr>
</tbody>
</table>

Machine Learning: Strand Module 4
Research Methods and Innovation: Strand Module 5
Strand Module 1 [10 ECTS]
Strand Module 2 [5 ECTS]
Strand Module 3
Option 1
Option 2
Option 3
Dissertation
# Augmented and Virtual Reality Strand

**Strand Leader:** Michael Manzke.

Theoretical and practical knowledge for design and development of the technology that underpins interactive entertainment industries, including video games new media and communication.

<table>
<thead>
<tr>
<th>Machine Learning</th>
<th>Real-time Rendering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods and Innovation</td>
<td>Real-time Animation</td>
</tr>
<tr>
<td>Advanced Software Engineering [10 ECTS]</td>
<td></td>
</tr>
<tr>
<td>Computer Vision</td>
<td>Augmented Reality</td>
</tr>
<tr>
<td>Computer Graphics*</td>
<td>Option 1</td>
</tr>
<tr>
<td>Math of Light and Sound</td>
<td>Option 2</td>
</tr>
</tbody>
</table>

*Students who have previously taken this module (or equivalent) MAY opt for another elective module chosen from other strands*
Data Science Strand

Strand Leader: Mimi Zhang.

Combines statistics, cloud and security technologies with data management and analysis to equip students with skills to tackle the challenges and opportunities of the big-data revolution.

<table>
<thead>
<tr>
<th>Machine Learning</th>
<th>Optimization Algorithms for Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods and Innovation</td>
<td>Applied Statistical Modelling</td>
</tr>
<tr>
<td>Data Analytics [10 ECTS]</td>
<td></td>
</tr>
<tr>
<td>Data Visualization</td>
<td>Security and Privacy</td>
</tr>
<tr>
<td>Scalable Computing</td>
<td>Option 2</td>
</tr>
<tr>
<td>Option 1</td>
<td>Option 3</td>
</tr>
</tbody>
</table>

Trinity College Dublin

MSc / PGDip in Computer Science
Future Networked Systems Strand

**Strand Leader**: Melanie Bouroche.

Smart and connected as software systems increasingly embedded in our everyday environments. Large-scale, cyber-physical and distributed systems require novel approaches that address timeliness, safety, privacy and scale challenges.

<table>
<thead>
<tr>
<th>Machine Learning</th>
<th>Internet of Things</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods and Innovation</td>
<td>Distributed Systems</td>
</tr>
<tr>
<td>Advanced Software Engineering [10 ECTS]</td>
<td></td>
</tr>
<tr>
<td>Scalable Computing</td>
<td>Security and Privacy</td>
</tr>
<tr>
<td>Urban Computing</td>
<td>Option 2</td>
</tr>
<tr>
<td>Next Generation Networks or Option 1</td>
<td>Option 3</td>
</tr>
<tr>
<td></td>
<td>Dissertation</td>
</tr>
</tbody>
</table>
# Intelligent Systems Strand

**Strand Leader:** Gaye Stephens.

Smart, interactive web applications and systems. Artificial intelligence, human language understanding and generation, web systems and applications, data analytics and knowledge engineering

<table>
<thead>
<tr>
<th>Machine Learning</th>
<th>Text Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods and Innovation</td>
<td>Information Retrieval &amp; Web Search</td>
</tr>
<tr>
<td><strong>Advanced Software Engineering [10 ECTS]</strong></td>
<td><strong>Dissertation</strong></td>
</tr>
<tr>
<td>Knowledge and Data Engineering</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>Adaptive Applications</td>
<td>Option 2</td>
</tr>
<tr>
<td>Option 1</td>
<td>Option 3</td>
</tr>
</tbody>
</table>
CS7CS5 Research Dissertation

**Dissertation Co-Ordinator:** Stefan Weber

Individual research project, under the supervision of an academic

Partially supported by CS7CS6 Research and Innovation Methods module in Semester 1

Main dissertation work over the summer, but you start now!
- Selection of supervisors and research areas in the next two months
- Develop a *research question* by the end of semester one
- Dissertation submitted in August

Single largest piece of work in your M.Sc. (worth 33% of the overall award), important to work on it all year.

Listing of Projects: [https://projects.scss.tcd.ie](https://projects.scss.tcd.ie)

**Try to pick a project early (before things get busy, while supervisors are available)**
Key Assessment Regulations

Pass mark is ≥50% for all modules including the dissertation
Mark of ≥70% is considered a Distinction mark [marks above 80 are rare!]

TAUGHT COMPONENT
• Must pass all modules (60 ECTS) in FIRST ATTEMPT to be allowed to do dissertation and be eligible for MSc
• Up to 10 ECTS of failed modules may be PASSED BY COMPENSATION iff the mark is ≥ 40%
• Otherwise you may attempt supplementals to pass failed modules for award of PGDip

RESEARCH COMPONENT
• Must pass dissertation (30 ECTS) in FIRST ATTEMPT to get MSc
• There are no supplementals for the Dissertation

MSc with DISTINCTION: Must obtain ≥ 70% overall in taught modules with no modules under 50% AND obtain ≥ 70% in dissertation
Important Note: Plagiarism Regulations

**Presenting the work or ideas of others as one’s own, without due acknowledgement**

Extremely important, particularly at PG level. Disregarding this is one of the most likely ways to fail.

Students must read regulations

- Details: https://libguides.tcd.ie/plagiarism
- Mandatory tutorial: https://libguides.tcd.ie/plagiarism/ready-steady-write
- [Also in Course Handbook]
## TCD Academic Year Structure

[https://www.tcd.ie/calendar/academic-year-structure/](https://www.tcd.ie/calendar/academic-year-structure/)

<table>
<thead>
<tr>
<th>Academic Calendar Week</th>
<th>Week beginning</th>
<th>2020/21 Academic Year Calendar</th>
<th>Term / Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>UG continuing years / PG all years</td>
<td>UG new first years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Orientation (UG new first years)</td>
<td>Michaelmas teaching term begins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teaching and Learning</td>
<td>Michaelmas term ends Sunday 20 December 2020/Semester 1 ends</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study/Review</td>
<td>Teaching and Learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 14-Dec-20 Teaching and Learning</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Christmas Period - College closed</td>
<td>24 December 2020 to 3 January 2021 Inclusive</td>
</tr>
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<td>17 21-Dec-20 28-Dec-20</td>
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<td>18 28-Dec-20</td>
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<td></td>
<td>19 04-Jan-21 Revision</td>
<td>Revision</td>
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<tr>
<td></td>
<td></td>
<td>20 11-Jan-21 Assessment*</td>
<td>Assessment*</td>
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<tr>
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<td></td>
<td>21 18-Jan-21 Assessment*/ Foundation Scholarship*</td>
<td>Assessment*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>22 25-Jan-21 Marking/Results</td>
<td>Marking/Results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23 01-Feb-21 Teaching and Learning</td>
<td>Teaching and Learning</td>
</tr>
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<td>25 19-Apr-21 Teaching and Learning</td>
<td>Teaching and Learning</td>
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<tr>
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<td></td>
<td>26 26-Apr-21 Trinity Week (Mon, Trinity Monday)</td>
<td>Trinity Week (Mon, Trinity Monday)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27 03-May-21 Revision (Mon, Public Holiday)</td>
<td>Revision (Mon, Public Holiday)</td>
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<tr>
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<td>28 10-May-21 Assessment*</td>
<td>Assessment*</td>
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<tr>
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<td>29 17-May-21 Assessment*</td>
<td>Assessment*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 24-May-21 Marking/Results</td>
<td>Marking/Results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31 31-May-21 Marking/Results</td>
<td>Marking/Results</td>
</tr>
<tr>
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<td></td>
<td>32 07-Jun-21 Research (Mon, Public Holiday)</td>
<td>Research (Mon, Public Holiday)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33 23-Aug-21 Research</td>
<td>Research</td>
</tr>
</tbody>
</table>

*Note: additional/contingency days may be required outside of the formal assessment/reassessment weeks.

*Note: It may be necessary to hold some exams in the preceding week.

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**Semester 1**
- Teaching Begins: 28.09.20
- Teaching Ends: 18.12.20
- 7th week in each Semester is free of classes
- Exams: 20th August (TBC)

**Semester 2**
- Teaching Begins: 01.02.21
- Teaching Ends: 24.04.21
- 7th week in each Semester is free of classes
- Exams: 24th June (TBC)

**Dissertation**
- Oral Examinations: Jul – start Aug (TBC)
- Deadline: 20th August (TBC)

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**Trinity College Dublin**

[Julietta na Tríonóide, Bhaile Átha Cliath]

The University of Dublin

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MSc / PGDip in Computer Science
Course Facilities

Lloyd Building
(Lecture Theatres LB01, Seminar Rooms LB107, LB120)

O’Reilly Building
(School Reception)

Trinity Central
(Trinity Central Lab)

Hamilton Building
(Hamilton Library)

7-9 South Leinster Street
(Main MSc Lab, Seminar Rm., Meeting Rooms*)

PLEASE NOTE: due to the current heightened covid alert level teaching rooms will not be available in the first 4 weeks of term. We will keep you informed of changing accessibility.

Highlighted locations are dedicated for this course [Lab resources will be more readily available for MSc students]

Further Computer Facilities Provided by College are listed at: https://www.tcd.ie/itservices/students/computer_rooms.php
Main MSc Facility: South Leinster Street 4th Floor Lab

Google Map: https://goo.gl/maps/DnrvLUNaAjnSmxkaA

**Student lab dedicated for the MSc in Computer Science**

Main lab (~80 workspaces | 25 under COVID19):
- Workstations with high-performance CPUs and GPUs
- Flexible spaces for work on student-owned laptops

Special equipment room to accommodate specialised activities such as audio-processing, augmented and VR applications, and other specialist work.

6 x Glass-panelled break-out rooms for small group learning and project work | 1-person occupancy under COVID-19

[Booking: https://www.scss.tcd.ie/cgi-bin/webcal/sls/]

50-seat [18 under covid] seminar room for small and medium-sized module teaching

Common Room [currently off limits]
COVID-19 Contingencies

*Physical distancing:* teaching venues at reduced capacity

*Reducing contacts:*
- Individual school’s assigned specific subset of venues
- Individual cohorts attend specific days – limited cross-over
- No physical attendance by individual unless scheduled and/or recorded [No Random Walk-ins]

Face coverings mandatory for any in-person attendance including self-study time in labs


*If you have symptoms suggestive of COVID-19:* ring College Health Centre at 01-896 1556. GP will ascertain need for test.
- HSE Testing Centre on Campus: [https://www.tcd.ie/collegehealth/service/COVID19Testing.php](https://www.tcd.ie/collegehealth/service/COVID19Testing.php)
COVID-19 Health and Safety Guidelines

Face coverings mandatory for any in-person attendance including self-study time in labs
Access to facilities only when you are scheduled to be there (no random walk-ins)
Any physical attendance in lab/study rooms needs to be recorded for contact tracing

If you have symptoms suggestive of COVID-19: ring College Health Centre at 01-896 1556. GP will ascertain need for test. Majority of tests carried out same day.

Important Links

• College Health Centre: https://www.tcd.ie/collegehealth/
• HSE Testing Centre on Campus: https://www.tcd.ie/collegehealth/service/COVID19Testing.php
• Working to a safe re-opening videos: https://www.tcd.ie/about/coronavirus/videos/
• General COVID-19 TCD site: https://www.tcd.ie/about/coronavirus/
COVID-19 Implications for MSc

Class sizes are very large in the SCSS Model (typically 100+)

Lectures assumed to be online and live [at timetabled hours]
- Individual module will inform you of any special arrangements
- Physical venues reserved on Monday for MSc/Y4/Y5 if/when needed

MSc Labs available on specific days in rotation for specific students “pods”
- [N.B. pod groupings and schedule will be notified to you next week]

Limited individual study rooms available on an online booking basis

Campus and library facilities remain open
Online Lectures and Course Materials: Blackboard

http://mymodule.tcd.ie
Other Recurring Communications

Microsoft Teams [https://teams.microsoft.com]

- Voice replacement for phone
- Oral presentations / viva voce
- Smaller group meetings
- Some classes
- Extracurricular chat and meetings

Login with TCD user id  [username@tcd.ie]

All TCD staff and students searchable
Learning to Learn Online in Trinity

Block 1. Getting Started for Learning Online
Block 2. Working Together Online
Block 3. Creating your Study Routine
Block 4. Preparing for Assessments

Info: https://www.tcd.ie/CAPSL/professional-development/learning_to_learn_online/

How to Enrol: https://student-learning.tcd.ie/learning_to_learn_online/
Contacts : General College

Global Relations [International students] : https://www.tcd.ie/globalrelations/

Global Officer for SCSS hester.jackman@tcd.ie

Student Counselling : https://www.tcd.ie/Student_Counselling/

Graduate Students Union: https://www.tcdgsu.ie/

Postgraduate Advisory Services (academic, pastoral and professional support):
http://www.tcd.ie/Senior_Tutor/postgraduate/

Careers Office : https://www.tcd.ie/Careers/

General Administration (registration, fees, graduation, etc.) : academic.registry@tcd.ie

Information Systems Services (General computing facilities for all college) : http://isservices.tcd.ie/
What you should do next

• Ensure you are registered if not already
• Check that you can access mymodule.tcd.ie
• Check that you can see your modules (in particular check your elective modules)
  • URGENT: Contact teaching-unit@scss.tcd.ie asap if you cannot see your elective modules or did not get the module selection form

• Complete the Learning to Learn Online Module
• Complete the Plagiarism Online Tutorial
• Look at projects.scss.tcd.ie and try to pick a topic/supervisor
Further advice

Pick a class rep early (volunteer for rep if interested).

See: https://www.tcdgsu.ie/how-do-i-get-involved

Get in touch with your strand leader at some stage
Try to get to know your class mates
Try to pick a dissertation early

Please be respectful of colleagues and college community. Try to treat college business as interactions within the grounds of college and abide by College’s code of conduct and Dignity and Respect policy.

Please be understanding of the fact that the volume of electronic communications has increased since COVID-19. Sometimes you may need to send a gentle reminder.
## Timetable: [https://my.tcd.ie/](https://my.tcd.ie/)

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.00 - 10.00</td>
<td>Reserved for F2F: Students will be notified in term</td>
<td>CS7DS1 Data Analytics</td>
<td>CS7DS4 Data Visualization</td>
<td>CS7CS3 (2hrs) Advanced Software Engineering</td>
<td>CS7CS3 (2hrs) Urban Computing</td>
</tr>
<tr>
<td>10.00 - 11.00</td>
<td>CS7NS1 Scalable Computing</td>
<td>CS7CS3 Advanced Software Engineering</td>
<td>CS7GV1 (2 hrs) Knowledge and Data Engineering</td>
<td>CS7IS1 Machine Learning</td>
<td>CS7GV2 (2hrs) F2F 7-9 Sth Leinster St. Rm 4.09</td>
</tr>
<tr>
<td>11.00 - 12.00</td>
<td></td>
<td>CS7NS3 Next Generation Networks</td>
<td>CS7CS4 Machine Learning</td>
<td>CS7NS3 Next Generation Networks</td>
<td></td>
</tr>
<tr>
<td>12.00 - 13.00</td>
<td></td>
<td>CS7IS1 Knowledge and Data Engineering</td>
<td>CS7NS4 Urban Computing</td>
<td>CS7IS5 Dissertation. Select Weeks only. Students will be notified in term.</td>
<td>CS7NS4 Urban Computing</td>
</tr>
<tr>
<td>13.00 - 14.00</td>
<td></td>
<td>CS7NS3 Next Generation Networks</td>
<td>CS7CS6 Research and Innovation</td>
<td>CS7NS1 Scalable Computing</td>
<td></td>
</tr>
<tr>
<td>14.00 - 15.00</td>
<td></td>
<td>CS7IS3 Urban Computing</td>
<td>CS7NS4 Information Retrieval and Web Search</td>
<td>CS7IS3 Information Retrieval and Web Search</td>
<td></td>
</tr>
<tr>
<td>15.00 - 16.00</td>
<td>Reserved for F2F: Students will be notified in term</td>
<td>CS7CS4 Machine Learning</td>
<td>CS7DS6 (2hrs) Scalable Computing</td>
<td>CS7CF (2hrs) Scalable Computing</td>
<td></td>
</tr>
<tr>
<td>16.00 - 17.00</td>
<td>CS7DS1 Data Analytics</td>
<td>CS7GV6 (2 hrs) Computer Graphics</td>
<td>CS7NS1 Scalable Computing</td>
<td>CS7CS4 Machine Learning</td>
<td></td>
</tr>
<tr>
<td>17:00 - 18:00</td>
<td>Reserved for F2F: Students will be notified in term</td>
<td>CS7GV6 (2 hrs) Computer Graphics</td>
<td>CS7CS4 Machine Learning</td>
<td>CS7CS4 Machine Learning</td>
<td></td>
</tr>
</tbody>
</table>

Colours indicate that a module is mandatory for a particular strand.  
- Red: Data Science.  
- Green: Intelligent Systems.  
- Blue: Future Networked Systems.  
- Light Blue: Augmented & Virtual Reality.
Questions?