Postgraduate Online Learning Open Days 2025

Recording

- Today's session is being recorded
- Any information that you provide during a session is optional and in doing so you give us consent to process this information
- If you don't want your question or name read out in public, you can email your question to futurestudents@ed.ac.uk or online.learning@epcc.ed.ac.uk
- Please note - a few attendees' names may be visible in the recording, if it is important that your name not be visible in the recording, please exit the session and re-enter using an incognito browser and typing in a pseudonym for yourself
- The session will be stored by the University of Edinburgh and published on our website after the event on a non-indexed web page
- ***You will be emailed with a link to watch the session recording by the end of next week***

High Performance Computing (HPC) and
HPC with Data Science
- an introduction to Online Learning at EPCC

Jemma Auns – PG Programmes Manager

Session will begin at 18:00 (BST)

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An introduction to Online Learning at EPCC

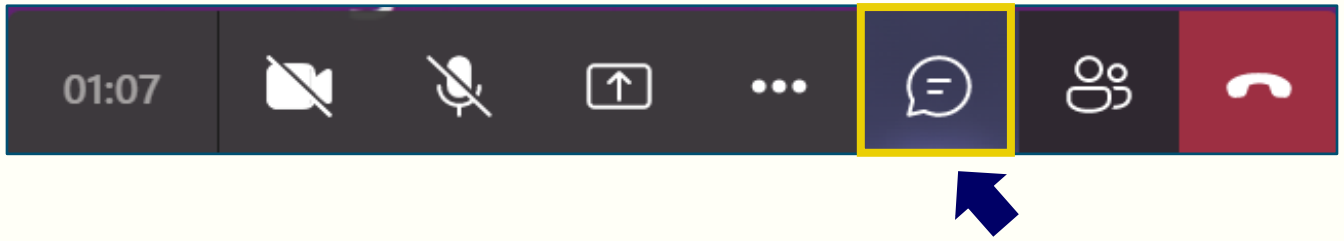
22 May 2025

Jemma Auns – Postgraduate Programmes Manager

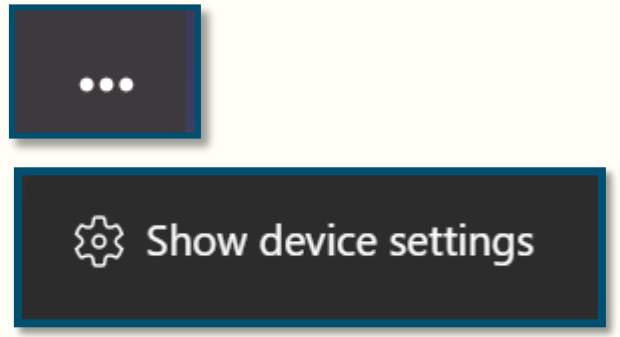
Total number of slides: 19

Audio check

- Can you hear the presenter speaking?
- Please type “**no**” in the Chat area **if you cannot hear the presenter**



- If you can’t hear:
  - Check your settings by clicking on the three little dots on the options bar and then ‘show device settings’. Here you can check and change your speakers.
  - Try signing out and signing back into the session
  - Don’t worry, the session is being recorded



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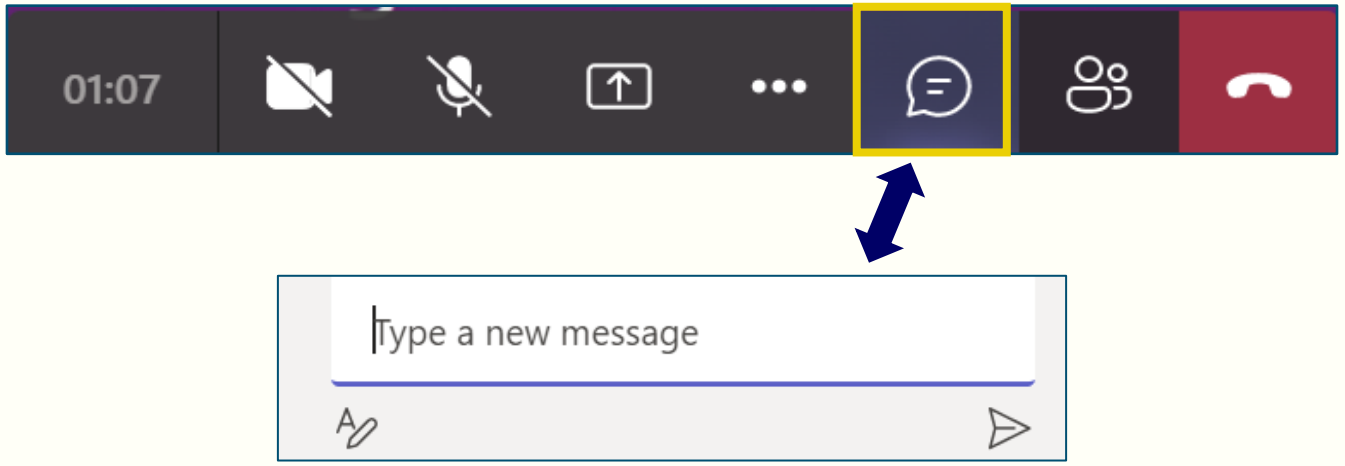
Questions and Interaction

- Question about what we are discussing? – ask straight away!
- General question? – open ‘Q&A’ at the end of the talk.

- Microphones and cameras have been disabled; use chat feature to ask us your questions.



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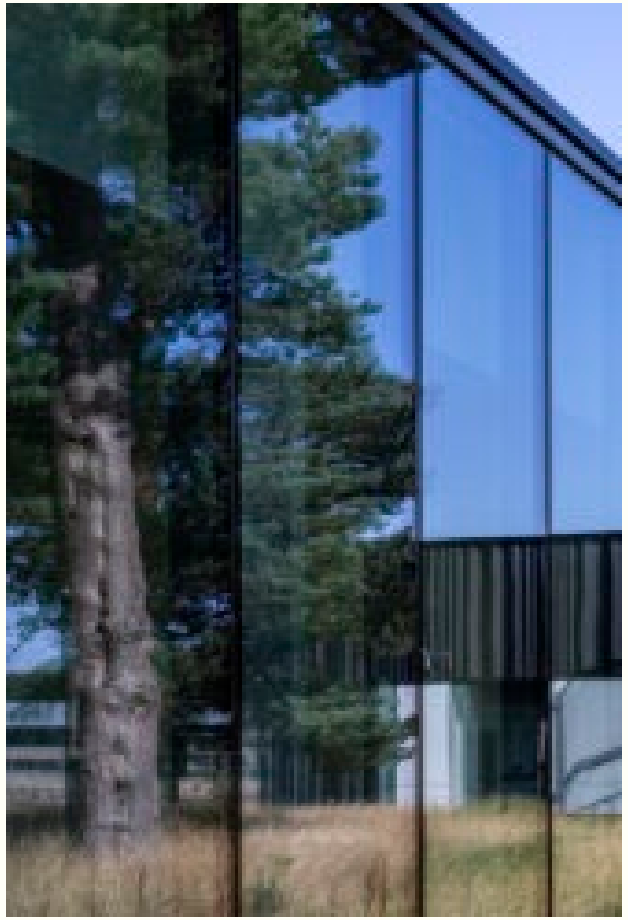
EPCC – Who we are

- Centre of Excellence in the University of Edinburgh
- UK National Supercomputing Centre
- EPCC established in 1990
- MSc established in 2001
- Currently have over 120 staff and 100+ students

- Based in two locations in Edinburgh:
  - Bayes Centre, Central University campus
  - Advanced Computing Facility (ACF)

EPCC – What we do



- Wide range of activities from supercomputing, advanced computing and data science research
- Host multiple national services including:
  - **ARCHER2** – EPSRC UK Tier-1 National HPC Service
  - **Cirrus** – EPSRC UK Tier-2 National HPC Service
  - **Edinburgh International Data Facility (EIDF)** - portfolio of services to support the Data Driven Innovation (DDI) programme
- Commercial and non-commercial training and education
- Specialise in postgraduate education programmes in ***High Performance Computing*** and ***High Performance Computing with Data Science***

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Postgraduate Studies at EPCC

Jemma Auns – Postgraduate Programmes Manager

EPCC Postgraduate Study

Postgraduate Taught Programmes in:

- High Performance Computing
  - MSc, Postgraduate Diploma, Postgraduate Certificate, Postgraduate Professional Development
- High Performance Computing with Data Science
  - MSc, Postgraduate Diploma, Postgraduate Certificate, Postgraduate Professional Development
- Image and Vision Computing with HPC
  - joint on-campus degree with Herriot Watt University (launched September 2024)

- PhD Opportunities in HPC, Computational and Data Science, Software Engineering and Sustainability

Finding the right programme

MSc
- 120 credits of compulsory and elective classes
- 60 credit dissertation
- Accredited award
- Online takes 3-6 years

PG Diploma
- 120 credits of compulsory and elective classes
- Accredited award
- Online takes 2-4 years

PG Certificate
- 60 credits of compulsory and elective classes
- Accredited award
- Online takes 1-2 years

PG ProfDev
- >50 credits of elective classes
- No final award
- Entry point for MSc or Dip
- 2 year study period

Programme Structure

Flexible Learning

- Take 0 - 80 credits per academic year
- “Invoiced at course level” – pay for what you take
- Designed to allow you to study at your pace:
  - Pre-recorded lecture material
  - Weekly tutorial sessions are live (usually repeated for timezone differences)
  - Asynchronous support (e.g. MS Teams)
  - Practical exercises to build skills for assessed work

Courses & Semester time

- Semester 1 – September to December
- Semester 2 – January to May
- 10 credit course equates to ~100 hours of engagement

Programme Structure

Assessment

Online programmes:

- Many courses are coursework and/or limited release short answer questions
- Some may use 24-hour examination format – i.e. exam paper made available for 24 hours, but only requiring 2-3 hours to complete.
- Also: groupwork courses, oral presentations, repository use
- Deadlines published in advance at start of course to enable planning in advance

Programme Requirements

- Passing grade at MSc level is 50%, and 40% for PG Diploma or Certificate
- Must complete the required number of credits for your programme and meet progression/awarding criteria
    - Two thirds of courses at or above pass level
    - Overall average at or above pass level

Timeline for MSc completion

	Estimate credits/academic year
3 year	60 – 60 – 60
4 years	40 – 40 – 40 – 60
5 years	30 – 30 – 30 – 30 – 60
6 years	20 – 20 – 20 – 30 – 30 – 60

Our support team can help you pick the best course choices based on your preferred timeline for completion.

Entry Requirements

- A UK 2:1 honours degree, or its international equivalent, in a relevant subject such as computer science and informatics, physics, mathematics, engineering, biology, chemistry and geosciences.
- Experienced and competent programmer in at least one of C, C++, Python, Fortran, or Java.
- Familiar with mathematical concepts such as algebra, linear algebra and probability and statistics.
- We will also consider your application if you don't have formal programming training (e.g. if you are primarily self-taught), or if you have a 2:2 honours degree with high marks in computational courses and/or additional relevant work experience.
- English-language requirements set by UoE

Fees & Funding

Current 2025/26 course rates:

- 10 credits £1,065
- 20 credits £2,125
- 60 credits £6,370

(n.b. rates may be subject to University-wide annual increases)

Things to note:

- Invoiced for courses each semester, and must be paid in full
- Scholarships may be available

https://registryservices.ed.ac.uk/student-funding/postgraduate

Curriculum Overview

Curriculum

Compulsory courses (60-80 credits)

- Practical Introduction to High Performance Computing (20 credits, Semesters 1 & 2)
- Practical Introduction to Data Science (20 credits, Semesters 1 & 2)
  - *Compulsory for HPC w/ Data Science only*
- Message Passing Programming (10 credits, Semester 2)
- Threaded Programming (10 credits, Semester 2)
- Programming Skills (10 credits, Semester 1)
- Software Development (10 credits, Semester 1)

Also…

- Project Preparation (10 credits, Semester 2 of penultimate year)
- Dissertation (60 credits: September - August)

Curriculum

Elective courses (30-50 credits)

- Parallel Design Patterns* (10 credits, Semester 1)
- Performance Programming* (10 credits, Semester 1)
- Advanced Message Passing Programming* (10 credits, Semester 1)
- Design and Analysis of Parallel Algorithms (10 credits, Semester 2)
- Numerical Algorithms for High Performance Computing (10 credits, Semester 2)
- Fundamentals of HPC System Administration (10 credits, Semester 1)
- Accelerated Systems: Principles and Practice* (10 credits, Semester 2)
- Machine Learning at Scale (10 credits, Semester 2)
- Plus, some optional courses available from School of Informatics or elsewhere in the College of Science and Engineering (subject to availability)

** Requires having completed compulsory course(s) first*

Example completion route

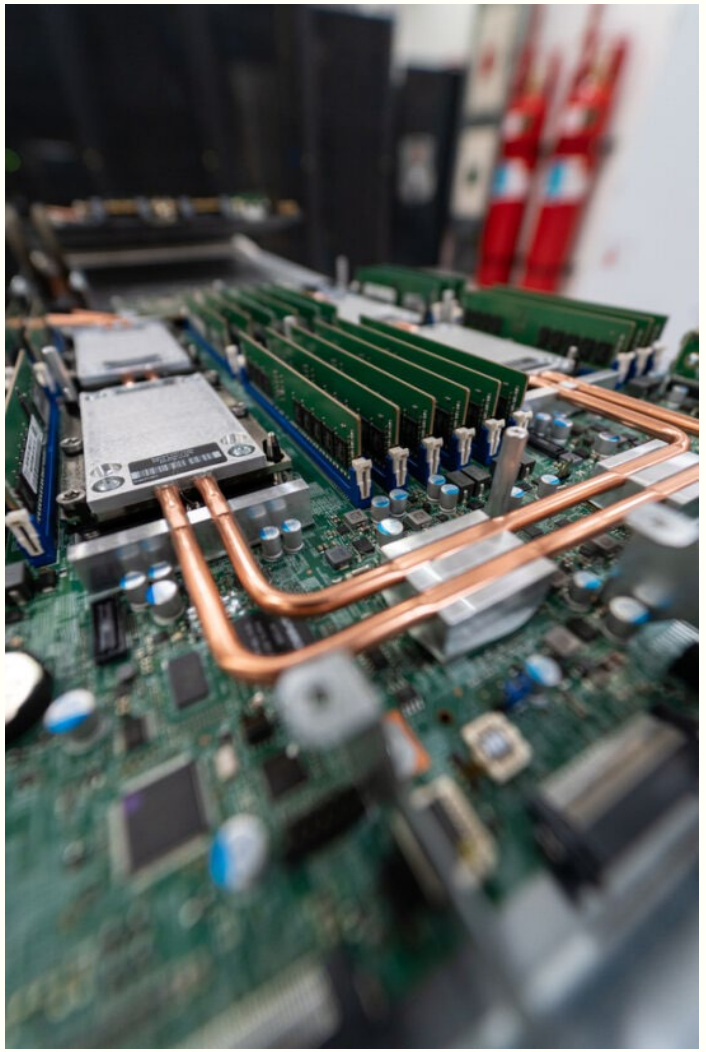
3 year	Year One	Year Two	Year Three
SEMESTER 1 (Sept-Dec)	Practical Introduction to HPC [20]	Performance Programming [10]	Dissertation [60]
	Programming Skills [10]	Advanced Message Passing Programming [10]	
	Software Development [10]	Design and Analysis of Parallel Algorithms [10]	
SEMESTER 2 (Jan-May)	*Continue Practical Introduction to HPC*	Accelerated Systems: Principles and Practice [10]	
	Message-Passing Programming [10]	Fundamentals of HPC System Administration [10]	
	Threaded Programming [10]	Project Preparation [10]	
Yearly Cost	*£6385 (split £4255 and £2130)*	*~£6390 (split £3195 each semester)*	*~£6370*

Learning Outcomes

- equip you with an understanding of HPC architectures and technologies,
- equip you with expertise in advanced tools and techniques for HPC software development
- enable you to apply this knowledge in order to exploit modern parallel and multicore computing systems in key scientific and commercial application areas
- enable you to develop skills in problem-solving, project management, independent and critical thinking, teamwork, professionalism and communication
- enable you to develop as HPC practitioners, able to apply current and emergent technologies in both industry and research
- teach the leading-edge programming techniques required to exploit the power of the world's largest parallel supercomputers

Why choose EPCC?

- Leading international HPC centre at leading international University; on-campus MSc programmes established more than 20 years ago
- Focus on practical hands-on experiential learning directed by leading practitioners and using national HPC system(s)
- Potential access to wide array of HPC systems and architectures
- Smaller cohort to promote discussion and appropriate support
- Alumni have gone on to work for companies such as:
  - ARM
  - Nvidia
  - Leonardo
  - EPCC
- Exciting PhD opportunities



Q & A

- Type your questions into the chat feature.
- Email our team at online.learning@epcc.ed.ac.uk and we will get back to you as soon as we can

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Thank you!

We hope to welcome you on to our programme soon