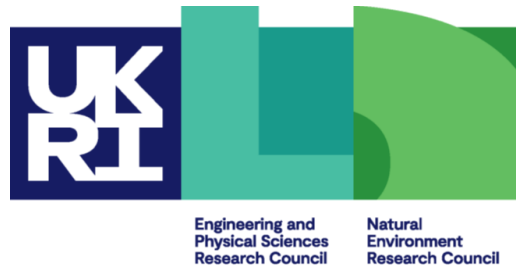


# ARCHER2 Training Courses

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## General Overview



Engineering and  
Physical Sciences  
Research Council

Natural  
Environment  
Research Council



# Reusing this material



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- Next UK National Supercomputer Service
  - managed by UKRI/EP SRC
  - to be housed, operated and supported by EPCC
  - hardware Supplied by Cray
- Training provided by the ARCHER2 Computational Science and Engineering (CSE) support team
  - 60 days per year at various locations
  - free to all academics



# To be located at EPCC's Advanced Computing Facility (ACF)



# ARCHER@ACF





# Cirrus@ACF



# What is EPCC?

- UK national supercomputer centre
  - founded in 1990 (originally Edinburgh Parallel Computing Centre)
  - a self-funding Centre of Excellence at The University of Edinburgh
  - running national parallel systems since Cray T3D in 1994
  - over 100 full-time staff
  - a range of academic research and commercial projects
  - postgraduate teaching and HPC training courses
- Get in contact if you want to collaborate
  - many staff are named RAs on research grants
  - joint research proposals
  - European project consortia



# Key ARCHER2 Resources

- Upcoming courses
  - <http://www.archer2.ac.uk/training/>
- Material from past courses
  - <https://www.archer2.ac.uk/training/materials/>
- Virtual tutorials (online)
  - <http://www.archer2.ac.uk/training/>
- Documentation
  - <http://www.archer2.ac.uk/documentation/>



# Who am I?

David Henty [d.henty@epcc.ed.ac.uk](mailto:d.henty@epcc.ed.ac.uk)

- In charge of education and training programme at EPCC
  - MSc
  - PRACE Training Centre
  - courses on the ARCHER2 training programme
  - commercial training
  - ...
- Also do HPC research
  - new parallel programming models, accelerators, performance, ...



# Other Resources

- Please fill in the feedback form!
  - <http://www.archer.ac.uk/training/feedback/>
- General enquiries about ARCHER go to the helpdesk
  - [support@archer2.ac.uk](mailto:support@archer2.ac.uk)
- EPCC runs one-year taught postgraduate masters courses
  - ***MSc in HPC*** and ***MSc in HPC with Data Science***
  - awarded by the University of Edinburgh since 2001
  - scholarships available
  - <http://www.epcc.ed.ac.uk/msc/>



# MSc in HPC / HPC with Data Science



- taught by EPCC staff (plus options in Informatics, Maths, Physics, ...)
- 12 taught courses (8 months); research dissertation (4 months)
- also available fully online for part-time, intermittent study

# Supercomputing MOOC

- [futurelearn.com/courses/supercomputing](https://futurelearn.com/courses/supercomputing)

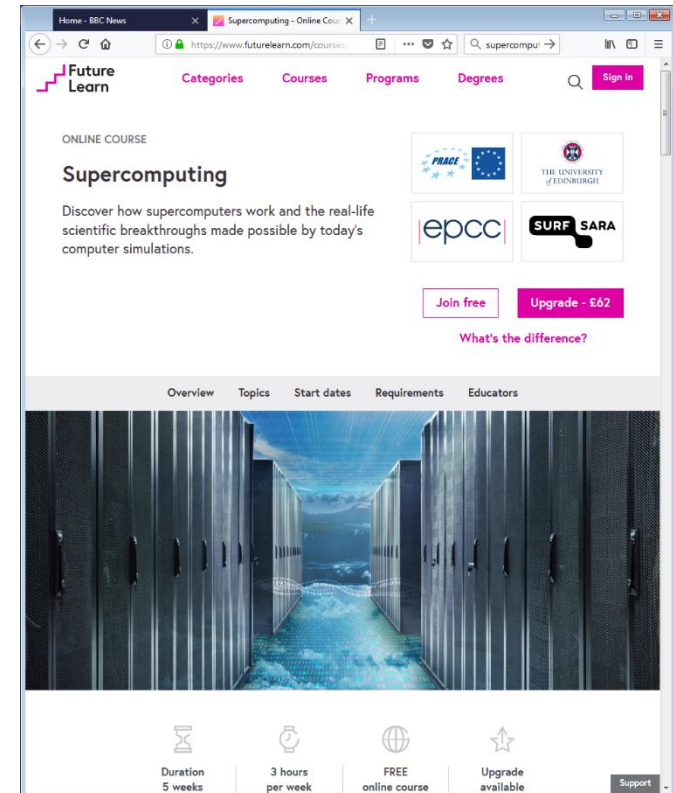
- 5 weeks
- free (with paid “upgrade” option)
- conceptual
- no computer programming required

- Run five times from 2017 - 2019

- typically thousands of “joiners”
- very collaborative
- lots of support from fellow learners

- Available now in “self-study” mode

- no active support from EPCC educators



# Access during course

- Personal accounts for duration of course
  - will allow machine access for up to a month afterwards
- Accounts will be closed two weeks after access ends
  - all files etc. will be deleted
  - take copies of all your work beforehand!
- Course materials (slides, exercises etc) will continue to be available from ARCHER2 website
  - archived on ARCHER2 training pages for future reference

# Access longer term

- Various ways to apply for time on ARCHER / ARCHER2
  - <https://www.archer.ac.uk/access/>
  - <https://www.archer2.ac.uk/support-access/>
- All require justification of resources
  - Instant Access has the lowest barrier to entry
  - designed for exploratory work, e.g. in advance of a full application
- Or take the “ARCHER Driving Test”
  - [www.archer.ac.uk/training/course-material/online/driving\\_test.php](http://www.archer.ac.uk/training/course-material/online/driving_test.php)
  - successful completion allows you to apply for an account for 12 months with an allocation of around 80,000 core-hours
  - backed up by online training materials
  - [www.archer.ac.uk/training/course-material/online/](http://www.archer.ac.uk/training/course-material/online/)





# Subscribing to training emails

- Weekly service updates sent to registered users
  - many contain information relevant to training
- You can subscribe to receive only training-related emails
  - even if you don't have an ARCHER or ARCHER2 account
- Visit:

<https://www.jiscmail.ac.uk/cgi-bin/webadmin?SUBED1=ARCHER-TRAINING&A=1>



# Security of room

- We cannot guarantee that the training venue is secure!
- We advise that you take your laptops and valuables with you during any breaks, e.g. over lunch time.

# Code of Conduct

<https://www.archer2.ac.uk/training/code-of-conduct/>

- We expect all course trainers and attendees to:
  - Use welcoming and inclusive language
  - Be respectful of different viewpoints and experiences
  - Gracefully accept constructive criticism
  - Focus on what is best for the community
  - Show courtesy and respect towards other community members
- See web page for full details and incident reporting form

# Funding calls

- Embedded CSE support
  - Through a series of regular calls, Embedded CSE (eCSE) support provides funding to the ARCHER2 user community to develop software in a sustainable manner to improve research on the ARCHER2 service. The funding allows the employment of a Research Software Engineer (RSE) to carry out software development of ARCHER2 software.
- See <https://www.archer2.ac.uk/ecse/> for details





# Partnership for Advanced Computing in Europe

Currently 25 members:

- Austria
- Belgium
- Bulgaria
- Cyprus
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Israel
- Italy
- Netherlands
- Norway
- Poland
- Portugal
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- UK

UK represented by EPCC  
(on behalf of UKRI/EPSRC)





# Ten PRACE Training Centres (PTCs)

Hubs for world-class HPC training for researchers in Europe

[www.training.prace-ri.eu](http://www.training.prace-ri.eu)

- ▶ Barcelona Supercomputing Center (Spain)
- ▶ CINECA - Consorzio Interuniversitario (Italy)
- ▶ CSC - IT Center for Science Ltd (Finland)
- ▶ EPCC at the University of Edinburgh (UK)
- ▶ Gauss Centre for Supercomputing (Germany)
- ▶ Maison de la Simulation (France)
- ▶ GRNET (Greece)
- ▶ ICHEC (Ireland)
- ▶ IT4I (Czech Republic)
- ▶ SURFsara (Netherlands)





# PRACE support

- ▶ PRACE also funds catering and other expenses for PTC courses
- ▶ Upcoming courses (at EPCC and throughout Europe)
  - ▶ [www.archer.ac.uk/training/](http://www.archer.ac.uk/training/)
  - ▶ [www.training.prace-ri.eu](http://www.training.prace-ri.eu)
- ▶ Please fill in the course feedback form!
  - ▶ see [www.archer.ac.uk/training/feedback/](http://www.archer.ac.uk/training/feedback/)
  - ▶ opens on last day of course

# ARCHER hardware / software setup

- 4920 nodes each with 24 Intel CPU cores
- Batch access via PBS pro: qsub
- Two file systems – you have two directories:
  - /home/ta002/ta002/username
  - /work/ta002/ta002/username
- You must run all parallel jobs from /work/
  - I recommend you cd straight there every time you log in
- Reserved queues each day for fast turnaround
  - e.g. qsub -q R7133965 ... on Tuesday



# I hope you enjoy the course



- ... and *please ask questions!*