ADVANCED SCIENTIFIC COMPUTING, CERTIFICATE

This certificate is open to all masters and PhD students currently enrolled at the University of Pennsylvania.

The Penn Institute for Computational Science (PICS) is pleased to announce the creation of the Certificate of Advanced Scientific Computing. This certificate is open to all MSE and PhD students currently enrolled at the University of Pennsylvania. The Certificate can be completed in 1 year and all courses can count towards other majors and degree requirements.

Upon successful completion, students will:

1. Develop unique skills at the nexus of high-performance scientific computing, data science, physical science and engineering.
2. Become equipped to solve the complex scientific and technological problems that carry societal impact through theory and computing.
3. Earn a Certificate of Advanced Scientific Computing which will appear on the student's official Penn transcript.

https://pics.upenn.edu/certificate-of-advanced-scientific-computing-at-the-penn-institute-for-computational-science/

Curriculum

In order to complete The Certificate of Advanced Scientific Computing students must:

Code	Title	Course Units
1) Download, complete and submit the registration form. [1]		
2) Complete 4 courses taught by PICS faculty members. Options include:		
1 CU in		
BE 5590	Multiscale Modeling of Chemical and Biological Systems	
or CBE 5590	Multiscale Modeling of Chemical and Biological Systems	
or MSE 5610	Atomic Modeling in Materials Science	
or MEAM 64	Computational Mechanics	
CIT 5960	Algorithms and Computation	
or CIS 5020	Analysis of Algorithms	
ENM 5310	Data-driven Modeling and Probabilistic Scientific Computing	
or CIS 5190	Applied Machine Learning	
or STAT 571	Modern Data Mining	
SCMP 5990	Master's Independent Study	
2 CU Electives in:		
CIS 5450	Big Data Analytics	
CIS 5200	Machine Learning	
or CIS 5210	Artificial Intelligence	
or CIS 6200	Advanced Topics in Machine Learning	
CBE 5440	Computational Science of Energy and Chemical Transformations	
Other course substitutions require prior approval		
3) Attend at least 2 workshops hosted by PICS. [2]		
4) Attend 8 AMCS or PICS colloquium hosted on various Fridays from 2:00pm-3:00pm [3]		

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Fill out the Registration Form (https://pics.upenn.edu/wp-content/uploads/2019/08/Permit-to-Register-for-PICS-Certificate-in-Advanced-Scientific-Computing-1.pdf) and have it signed by your adviser. Submit the completed form via email or in person to Ravi Radhakrishnan (https://www.seas.upenn.edu/directory/profile.php?ID=76).

2

More information on PICS workshops can be found here (https://pics.upenn.edu/events/).

3

More information on AMCS or PICS colloquium can be found here (https://pics.upenn.edu/events/).

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2022 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.