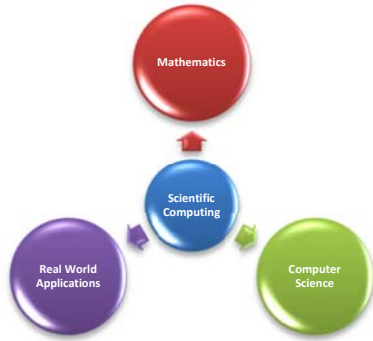## Scientific Computing Programme

Institute of Applied Mathematics is offering **M.Sc. and Ph.D.** programs in Scientific Computing. The programme aims at educating the next generation of inter-disciplinary science students with the knowledge, skills, and values needed to pose and solve current and new scientific, technological and societal challenges.

Scientific Computing Programme consists of the triple junction of mathematics, computer science, and applications to scientific and engineering modelling.

The programme mainly is based on the following courses:

- ❖ Introduction to Scientific Computing I,
- ❖ Introduction to Scientific Computing II,
- ❖ Numerical Optimization,
- ❖ Finite Element Methods,
- ❖ Statistical Learning and Simulation.

The research areas range from foundation mathematics and fundamental numerical algorithms to such practical topics in computational fluid dynamics, PDE-constrained optimization, model order reduction, statistical learning, computational biology, high performance computing, uncertainty quantification, and computational finance.

Admission Requirements and Application

- ❖ **English:** METU-EPE $\geq$ 64.5, TOEFL $\geq$ 79
- ❖ **Graduate Exam:**
  M.Sc.: ALES $\geq$ 70 or GRE $\geq$ 155 ($\geq$ 696)
  Ph.D.: ALES $\geq$ 75 or GRE $\geq$ 156 ($\geq$ 713)
- ❖ **Reference Letter** (at least 2)
- ❖ **Letter of Intention** (included in online form)
- ❖ **Oral Interview**

INSTITUTE OF APPLIED MATHEMATICS

Dumlupınar Blv. No:1, 06800 Çankaya/Ankara, Turkey
Phone : +90 (312) 210 2987
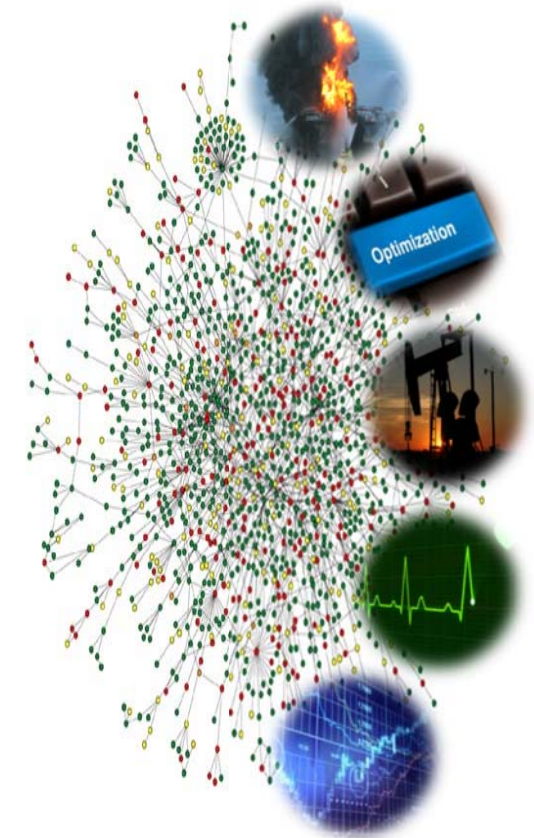Fax : +90 (312) 210 2985
E-Mail : **iamenst@metu.edu.tr**
https://iam.metu.edu.tr/scientific-computing

For Application Deadline and More Information:

http://iam.metu.edu.tr/application-and-admission

SCIENTIFIC COMPUTING

M.Sc. & Ph. D. PROGRAMS

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

What is Scientific Computing?

Scientific Computing (SC) is a broad, multidisciplinary area that encompasses applications in science, engineering, mathematics, and computer science. SC makes use of the techniques of applied mathematics and computer science for the solution of scientific and engineering problems. Therefore, SC is nowadays regarded as a "**third pillar**" of science, along with **theory** and **experiment** in the advancement of scientific knowledge and engineering practice.
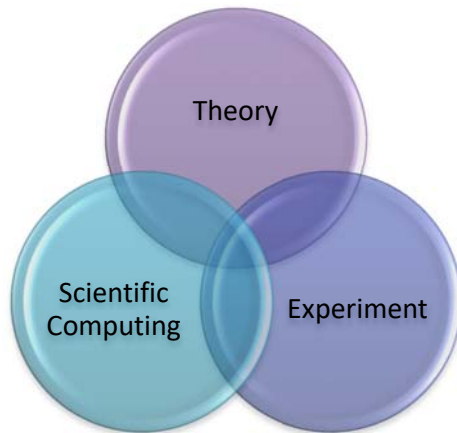
Why do we study Scientific Computing?

Modern scientists increasingly rely on computational modelling and data analysis to explore and understand the natural world. Given the ubiquitous use in science and its critical importance to the future of science and engineering, computational modelling plays a central role in progress and scientific developments in the 21st Century.

Objectives of Scientific Computing Program

The aim of Scientific Computing Program is:

* ❖ **To design** state-of-the-art mathematical and computational models and algorithms;

* ❖ **To train** graduates from different disciplines with the aim to develop and apply their skills to the solution of real life problems from science, engineering, industry;

* ❖ **To develop** collaboration with scientist elsewhere by building a comprehensive and international research platform, to support academic and technological exchange and advancement;

* ❖ **To conduct** fundamental and frontier research with advanced computational approaches, thereby talents worldwide and train highly qualified research personal, to support scientific development in Turkey.

Who can apply to Scientific Computing Programme?

Scientific Computing is suitable for students from faculty of science and faculty of engineering who are able to work on interdisciplinary projects. While working on their thesis, students are strongly encouraged to develop all necessary skills for a self-reliant scientific career, e.g., problem analysis and problem-solving, project and self-management.

Career Prospects

A significant aspect of this programme is the ability to offer new educational opportunities consisting of the tools and techniques of mathematical modelling and scientific computing that are aligned with the needs of the 21st century workforce. Many companies are seeking individuals who have knowledge of both a specific discipline and computational modelling.