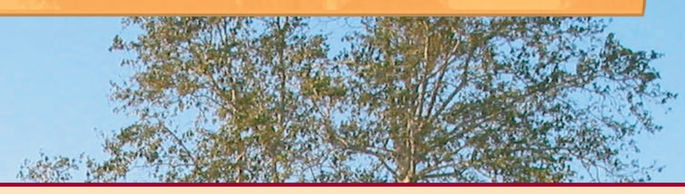
Academic Affairs

MATHEMATICS

Presented By:

Ivona Grzegorczyk, Ph.D. Professor of Mathematics Chair, Mathematics Program Cynthia Wyels, Ph.D. Associate Professor of Mathematics Director of Graduate Mathematics Program Geoff Buhl, Ph.D. Assistant Professor of Mathematics Jesse Elliott, Ph.D. Assistant Professor of Mathematics Jorge Garcia, Ph.D. Assistant Professor of Mathematics Kathryn Leonard, Ph.D. Assistant Professor of Mathematics



Degrees Offered In Mathematics

- Bachelor of Science in Mathematics
- Minor in Mathematics
- Master of Science in Mathematics
- Approved CCTC Mathematics Subject Matter Waiver Program

Mathematics can be pursued as a scholarly discipline of an especially elegant and creative art form or it can be treated as a valuable tool in an applied discipline. Our program addresses both needs. Students will be given a strong background in mathematics and statistics as well as a substantial amount of interdisciplinary applications in Physics, Biostatistics, Business, Computer and Information Sciences, Computer Imagining or Artificial Intelligence.

Students graduating from the Mathematics program will be able to:

- Demonstrate critical thinking, problem solving skills and ability to use advanced mathematical methods by identifying, evaluating, and classifying, analyzing, synthesizing, data and abstract ideas in various contexts and situations.
- Demonstrate the knowledge of current mathematical applications, computing practices and broad technology use in industry, science and education.
- Demonstrate ability to use modern software, abstract thinking, and mathematical practices connected to scientific and industrial problems, and demonstrate these skills that are currently used by technologies in society and education.
- Perform skills that enable them to evaluate, propose and convey novel solutions to scientific and business problems, etc.
- Demonstrate cooperation skills by working effectively with others in interdisciplinary group-settings - both inside and outside the classroom.
- demonstrate a sense of exploration that enables students to pursue lifelong learning and currency in their careers in mathematics, statistics, education, high-tech and bi-tech industries.

Careers

The mathematics major will prepare students for teaching careers, studies in g raduate programs (in pure mathematics, applied mathematics, mathematics education, or the mathematical sciences) or for employment in high-tech and bio-tech industries, where mathematics-trained professionals with interdisciplinary expertise (sciences and business) are increasingly sought after. So far all our graduates are either employed or in graduate schools (100%).

Accomplishments

- Received over 20 research and technology grants.
- Presented at national and international conferences (including France, Holland, Czech Republic, Italy, Mexico, England, and Spain).
- Received multiple honors and awards Published over 20 papers in various peer reviewed journals.
- Completed over 30 research projects with students (award winning).
- Implemented BS in Mathematics and BS in Applied Physics, MS in Mathematics Degree with over 25 students, Computer Gamming minor, Foundational Mathematics Minor, Mathematics Minor and Physics Minor.
- Reviewed CCTC accreditation in the first year of operation.
- Run the Math Tutoring Center (with Advising).
- Run two weekly Mathematics Seminars open to academia and community + Physics Seminar with distinguished speakers (over 65 invited speakers).
- Run several open workshops on mathematical software (including Maple, MathLab, TEX, LATEX).
- Hosted state-wide Mathematics Association of America Meeting, Fall 2005.
- Hosted several visiting faculty doing research in mathematical sciences.
- Organized a student exchange program with Hidalgo Universities in Mexico (in progress).
- Organized 20 mathematics faculty and students picnics (and soccer games).

Recent Student Achievements

- January 2007, American Mathematical Society Meeting in New Orleans – 3 student projects selected for presentation supported by travel grants.
- December 2006, Centro de Investigation en Matematicas, Mexico – grant for 6 students to attend Algebraic Geometry conference.
- October 2006, Mathematical Association of America in Long Beach California, several student projects accepted for presentation.
- Summer 2006, REU Research at Undergraduate Institution – grant for a summer program at Channel Islands American Mathematical Society meeting in San Francisco – a group of math students from Channel Islands met with the famous mathematician B.Mandelbrot who popularized fractals.
- May 2006, CSU Student Research Competition at CSU Channel Islands. 6 math projects were accepted and short lectures presented at the competition.
- March 2006, 10 students presented short papers at the international math meeting at University of Hidalgo, Mexico.
- March 2006, Mathematical Association of America Conference, at Cal State San Bernardino, the 10 students presented research projects and the following awards were won by our students.
- October 2005, Mathematical Association of America Conference, at Channel Islands. 8 math projects were accepted and short lectures presented at the conference.
- May 2005, CSU Student Research Competition at Sacramento. The following 5 projects were accepted and short lectures presented at the competition.

Assessment Activities

For the 2005-2006 academic year, the Mathematics Program selected three learning outcomes to assess:

(1) demonstrate knowledge of some of the current applications of mathematics in the sciences, industry, and/or education; (2) demonstrate communication skills by expressing mathematical ideas in oral and written form; and, (3) demonstrate a sense of exploration that enables one to pursue lifelong learning. To assess the degree to which students met these three outcomes, Mathematics developed a rubric for evaluating student presentations, distributed them to the entire CSUCI mathematics faculty (including part-time instructors), and solicited evaluations from them for student presentations. These presentations were made at (1) the Mathematics Colloquium in which Math seniors are required to make a presentation, and on June 11, 2006, and the CSU Student Research Competition, held on May 5, 2006, at CSUCI. The presentations were scored along a number of dimensions relevant to the student learning outcome. Statistical tests provided strong evidence that each of the three learning outcomes was met. However, Math also decided that further depth should be sought from student projects. In the future, further depth will be solicited from student projects in Math 492 and 499.