

# Mathematics & Statistics

## 2012 Department at a Glance

### Points of Pride

- Recognized as one of the top public graduate programs in the recent National Research Council rankings.
- Paul Hacking and Jenia Tevelev helped organize the AGNES series of conferences.
- Eduardo Cattani co-directed a summer school on Hodge Theory in Trieste, Italy.
- Richard Ellis' book *Entropy, Large Deviations, and Statistical Mechanics* was printed in China
- Bruce Turkington was a plenary speaker at the 2010 MetStroem Program on climate prediction in Berlin.
- Franz Pedit gave plenary talks at Differential Geometry and its Applications and at the British Mathematical Colloquium.
- HongKun Zhang was named to the editorial board of *Advances in Pure Mathematics*.
- Panos Kevrekidis and Andrea Nahmod had a featured article in the journal *Nonlinearity*.
- Weimin Chen is co-PI of a Focused Research Group: The Topology and Invariants of Smooth 4-Manifolds.
- Undergraduate Nathan Harman won Honorable Mention in the Putnam Competition.

### Education

- The department teaches over 12,000 students per year and offers a full curriculum from general education through the PhD, including a separate MS program in Applied Mathematics.
- Farshid Hajir won the 2011 UMass Amherst Distinguished Teaching Award.
- Farshid Hajir led an effort to unify the mathematics curriculum of preservice teachers on all UMass campuses.
- Academic Programs:
  - Undergraduate majors and minors with various concentrations
  - Traditional MS and PhD programs
  - Innovative MS program in applied mathematics for careers in high-tech industry
- Undergraduates are encouraged to participate in independent research.

### Leadership & Outreach

- Sarah Marie Belcastro published the book *Crafting by Concepts: Fiber Arts and Mathematics*.
- George Avrunin is lead PI for the Western Massachusetts Mathematics Partnership to improve K-12 math education.
- The new Center for Statistical Consulting and Collaboration Services is open.



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### By the Numbers FY11

Tenure-Track Faculty	41
Postdoctoral Fellows	4
Undergraduate Majors	343
Graduate Students	63
Research Awards	\$1,483,400

### Research Areas

#### *Pure Mathematics:*

Low-dimensional geometry and topology, algebraic geometry, number theory, and representation theory.

#### *Applied Mathematics:*

Computational mathematics, mathematical physics, analysis, partial differential equations, dynamical systems, and probability.

#### *Statistics:*

Theoretical and applied statistics, with particular emphasis on Bayesian statistics, bioinformatics, mixture models, and measurement error models.

Our research frequently cuts across these somewhat artificial boundaries: i.e., some of the work most closely connected to current topics in mathematical physics (“applied” mathematics) is being done by researchers in representation theory, algebraic geometry, and low-dimensional geometry (“pure” mathematics).