

Saint Olaf College Northfield, Minnesota

Department of Math/Statistics/CS

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www.stolaf.edu/depts/mscs

Engaging Young Mathematicians

August 2005

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MSCS mission (excerpts)

To foster a community of students and faculty that promotes the beauty, power, and enjoyment of mathematical thought and its importance among the liberal arts. To this end:

- “big tent” philosophy
- promote scholarship (broadly defined)
- support innovation in teaching, learning, scholarship
- celebrate learning *and* doing mathematics

St. Olaf MSCS department

- math, stats, CS together
- about 16 faculty FTE
- 12 math, 2 stats, 2 CS
- almost all full-time
- 6-course teaching load

St. Olaf math courses

- 1400 math course enrollments/year
- 750 level 1 (calc 1 and 2, gen. ed. ...)
- 500 level 2 (linear algebra, DE, MVC, abstract alg., elem. real analysis ...)
- 150 level 3 (real analysis 2, topology, complex, abs. alg. 2, ...)
- no “pre-calculus”

St. Olaf students (all)

- 3000 students
- almost all full time, age 18 – 22
- 57/43 women/men
- total SAT about 1250
- 90th percentile high school

St. Olaf math majors

- 60 – 65 math majors/year
- 200 – 250 math majors in “pipeline”
- about 35% women
- math SAT about 700
- about 150/year get Calc 1 AP credit
- about 50/year get Calc 2 AP credit

St. Olaf math majors (cont.)

- double majors common (physics, econ, bio, ...)
- about 50% do *some* graduate school
- about 15% do *some* PhD
- among top six undergrad. origins of math PhDs, 1991 – 1995 (29 PhDs)

St. Olaf major: generalities

- about 35 courses required for BA
- about 16 gen. ed. courses req. for BA
- 10-12 math courses
- IMaP “contract” system (Individual Math Plan)
- some flexibility
- base: (Calc 1), Calc 2, Linear Algebra

St. Olaf major: specifics

- **base:** calc 1, calc 2, linear algebra
- **transition:** at least 2 of {abs. alg., elem. real analysis, modern comput'l math.}
- **advanced:** at least 2 level III (real analysis 2, topology, complex, abs. alg. 2, ...), *incl. one level II – level II seq.*
- **electives:** at least 3 more courses
- **perspectives:** at least 3 of {modeling, continuous, algebraic, discrete/combinatorial, ...}

Special features (students)

- weekly student-oriented colloquium
- encourage undergraduate research
- GRE review sessions
- weekly newsletter (*MSCS Mess*)
- Budapest Semester in Mathematics
- summer research, REUs, SMP, ...

Special features (faculty)

- tenure := teaching > scholarship > service
- broad MSCS definition of scholarly activity
- research seminar (broad definition)
- “young” faculty mentored by “old”
- teaching quality key to hiring, retention

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Where majors work

- High school teaching
- Target Technologies
- 3M, Northwest Airlines
- St Paul/Travelers
- May Clinic, Minnesota Dept of Health
- Pillsbury, General Mills, Best Buy, ...

St Olaf “ideologies”

- Early socialization (To Be or Not To Be ...)
- Advising
- Focus on writing
- Big tent model
- “Extras”: Budapest, REUs, SMP, GWU, ...