

DEPARTMENT OF MATHEMATICS

# VIGRE Funding Report

(due 30 days after semester of support)

Semester/Summer and Year:

Fall 2007

Name: Michael Bishop

List the graduate courses you have taken this semester (including independent studies), your grades, and the instructors:

Course	Title	Grade	Instructor
Math 511A	Algebra	A	Savitt
Math 523A	Analysis	B	Friedlander
Math 534A	Topology-geometry	A	Flashka

List the title, date and location of any talks you have given, either here or elsewhere:

If you are working on your dissertation, include a one paragraph description of your research progress. If you have not yet begun dissertation research, describe your progress toward finding a dissertation topic and advisor and beginning that research.

As a first year, my goal has been to explore the research being done at Arizona. I've spent most of the extra time granted by the Vigre grant to go to two or three seminars a week and listen to the research topics discussed. Besides the graduate colloquium, I've made it to the geometry seminar quite a bit, the Algebra and Number Theory Seminar, the Group Theory seminar, the Non-linear waves and randomness seminar as well as some of the department talks. To build connections, I have been attending the department teas on a regular basis to get to know the faculty as well as other grad students.

List publications, if any.

Check all activities you completed during the funded period:

Academics:

- Independent Study
- Oral Comprehensive Exam
- Commence Thesis Research
- Conference attendance
- Conference participation
- Complete PhD

Professional development and outreach:

- AP Calculus Visit
- High School Workshops
- Undergraduate Research Project
- Undergraduate Research Seminar
- Super TA
- Mentoring junior graduate students for the qualifying exams
- RTG (help organize)
- Research Seminar (help organize)

Other (please specify)

Attach a brief statment about your academic progress and professional development during the period of support.

Michael Bishop

Vigre Statement for Fall 2007

My goal coming into the semester was to readjust to life as a student, relearn and refine my mathematics knowledge and skills and most importantly, adapt to the demands of graduate school.

My semester started with the Orientation Workshop, a five-day event designed to help grad students understand the expectations of the department as well as being a crash course in various fields of mathematics. While it was exhausting, it was very worthwhile for reacquainting with subjects I had not studied much in the previous two years. The problem sessions helped greatly in practicing the skills that had grown rusty, but more importantly, getting to know my classmates as well as the graduate students and faculty. It helped my classmates and me to learn to work together which has continued through the semester. Likewise, the project I did with Michael Gilbert on the Euler characteristics reminded me of my passion for geometry and dynamic systems.

Between the orientation workshop and the start of the semester, I spent the week and a half working in my new office, studying topology. I had never studied it previously; it was obvious from the orientation workshop that it would be expected knowledge. Thankfully, the orientation helped clear up confusion that had made my summer study somewhat useless. So I spent the time going through appendix of the smooth manifolds book we would use in topology to get proficient in the subject. By the first week of the semester, I was on par with my classmates in basic topology.

Though the semester proved difficult, I have progressed greatly both in my problem solving and proof-writing. The homework provided a lot of good practice. While I have some improvement to do before the Qualifying exams, I am quite happy with the progress I made through the semester. Likewise, the material has been extremely difficult, but I managed to keep in all three classes. Both from my midterms and finals, it's clear that I am on pace to pass my Topology and Algebra Qualifying exams, I will need some serious work in Analysis, where I seem to miss many important nuances.

As far as progress towards research, this semester my goal was to explore the topics. I regularly went to the seminars and talks hosted by the department on recommendation of my advisor, Professor Joshi. The graduate colloquium was most useful simply because it was closer to my level and because it provided basic insight into topics I will study and explore more thoroughly in the years to come. I have made it to the Geometry seminar quite a bit, the Algebra and Number Theory seminar, the Group Theory seminar, the Non-linear Waves and Randomness seminar as well as some of the department talks. The department teas also provided great opportunities to get to know the faculty.

As a whole, I reached my goals that I had set for this semester and the Vigre grant helped greatly with the extra time it granted me.