Graduate Student Orientation
August 16, 2010
Overview

• Advisor Assignments
• Information Sources
• Degree Options and Requirements Summary
• Overview of Course Offerings
• Meetings with Advisors (10:15-12 today)
Sources of Information

Available courses:
- Timetable of Classes (times and locations: http://www.hokiespa.vt.edu/ Timetable of Classes)
- Planned Course Offering Chart (future planning and links to announcements: http://www.math.vt.edu/ Planned Course Offering Chart)

Mathematics degree requirements:
- Graduate Programs in Mathematics: Policies and Degree Requirements:
  - http://www.math.vt.edu/ Graduate Program Advising Policies

Graduate School requirements and brief course descriptions:
- http://www.math.vt.edu/ Graduate Program Advising Virginia Tech Graduate School
- http://www.math.vt.edu/ Graduate Program Graduate Catalog

People:
- Your advisor
- Eileen Shugart (GTA coordinator)
- John Rossi (advising coordinator)
- Nicole Sutphin (graduate secretary)
- Slimane Adjerid (chair, graduate program committee)
- SGTAs
Degree Options

• **M.S. Options**
  – Standard or Interdisciplinary
  – Thesis or Non-thesis

• **M.S. Requirements**
  – 30 credit hours of coursework (+ research hours for thesis)
  – Maximum of 6 hours at 4000 level
  – Thesis, or 2 prelims, or masters presentation

• **Ph.D. Program**
  – Entry
  – 90 hours (courses + research hours + M.S. hours)
  – 3 written prelims (or 2 plus VT M.S. thesis) + oral exam
  – Dissertation and defense
M.S. Course Requirements

**Background:**

- Abstract Algebra (4124) or equivalent
- Real Analysis (4225,6) or equivalent
- Computation (algorithm development, implementation and application)
  - numerical analysis, computer science, engineering, 5726, ...

**Concentration:** one approved sequence – see Grad. Programs in Math.

**Typical Schedule for First and Second Year Students:**

- Full load is 12 credit hours. (Permission needed for more than 18.)
- You must be registered for 12 credits to hold a GTA/GRA.
- Typical load: 9 credits of courses + 3 credits of “research” (Math 5994).
- Math 5994 hours apply toward required 30 hours *only* for thesis option.
Course Offerings

Fall 2010 – Spring 2011
Analysis Courses

• 4000 Reals (4225,6)
• 5000 Reals (5225,6 Prelim)
• Complex Analysis (5235,6 Prelim)
• Functional Analysis (6255,6 Prelim)
Algebra Courses

• 4000 Algebra (4124)
• Special Topics (Spring: 5114)
• Matrix Theory (Spring: 5524)
• 5000 Algebra (5125, Prelim)
Discrete Math

- Combinatorics (5464)
- Graph Theory (Spring 5454)
- Discrete Dynamical Systems (Spring 5415)
Topology/Geometry

- Elementary Topology (4324)
Differential Equations

– Applied PDEs (5425,6 Prelim)
– Calculus of Variations (5545,6 Prelim)
– ODEs (5245,6 Prelim)
Numerical Analysis

• Numerical Analysis (4445,6)
• Numerical Analysis (5465,6  *Prelim*)
• Finite Differences (5474)
• Finite Elements (Spring: 5484)
• Num. Anal. and Software (CS: 5485,6)
Applications

- Mathematical Biology (5515)
- Financial Mathematics (5725,6)
- Principles and Techniques (5435,6)
Topics Courses – past 2 years

- Several Complex Variables
- Stochastic Processes
- Algebraic Topology
- Sensitivity Analysis
- Sobolev Spaces
- PDE’s
- Finite Elements
- Semigroups
- Robust Control
- De Rham Cohomology
- Hodge Theory
Preparation for Advising

• Bring your background information:
• Advanced undergraduate and graduate courses
• Textbook titles & authors (especially re. real analysis, algebra, computation)
• Other projects ... that your advisor should know about
• Think about your interests and goals
• Look over degree requirements (Graduate Programs handbook)
• What are the things you are eager to study?
• What questions do you have?

• Meet your advisor 10:15 here or at their office (or make other arrangements).

• Last day to add: Aug. 27
• Last day to drop: Oct. 18