

## Applied and Computational Mathematics MS Program Scholarly Goals

### 1. Knowledge and Scholarly Formation

#### Demonstrate knowledge of core disciplines and specialization in a field of concentration

- a. Graduates demonstrate proficiency across core disciplines—linear algebra, abstract algebra, real analysis, probability [*comprehensive examination*]
- b. Graduates demonstrate specialized proficiency in a field of concentration [*successful completion of courses in selected concentration subjects, thesis or project, final examination*]

### 2. Research and Methodological Skills

#### Conduct scholarly research in field

- a. Graduates will have conducted effective research demonstrating proficiency in application of appropriate research methods [*completed thesis/project*]
- b. Graduates will have demonstrated proficiency in use of appropriate methods and computational tools relevant to research task [*coursework in relevant subjects*]
- c. Graduates will have conducted research in ethical manner [*responsible use of data, proper citation and attribution of used sources*]

### 3. Communication Skills

#### Communicate expertise across multiple constituencies

- a. Graduates will have effectively communicated results and methods to experts in the field [*presentations in courses and seminars, presentation of thesis/project at final examination; committee and audience will complete a short anonymized questionnaire*]
- b. Graduates will have effectively communicated methods and tools to broader audiences and non-experts [*presentation of summer research report to first year students; DGS and audience will complete a short anonymized questionnaire*]
- c. Graduates will have demonstrated writing and editing skills sufficient for creation and acceptance of professional papers and reports in the field [*thesis/project, summer research report, journal publications; committee will complete a short anonymized questionnaire*]

#### **4. Management and planning skills**

##### **Initiative, persistence and project planning and management**

- a. Graduates will have demonstrated management capacity and skills in project planning and performing *[thesis/project proposal, summer research report, gathering sources, thesis/project structure design; advisor will complete a short anonymized questionnaire]*
- b. Graduates will have demonstrated Individual initiative sufficient for successful completion of research project *[identifying an advisor, finding a topic for research project, gathering relevant resources; advisor will complete a short anonymized questionnaire]*
- c. Graduates will have demonstrated adaptability and persistence sufficient for successful completion of research for publication *[advisor's feedback, re-writing and editing of thesis/project and final exam presentation; advisor will complete a short anonymized questionnaire]*

#### **5. Cultural Competence and Global Context Formation of the Field**

##### **Global formation of the field**

- a. Graduates will utilize research generated outside of the US for completion of coursework and final project