Advising Mathematics Students Academically and Professionally

Dr. James Sellers
Associate Professor and Director,
Undergraduate Mathematics
Penn State University
Today’s Goals

- Share some of the many tasks that an advisor must perform
- Provide personal insights regarding these tasks
- Share information on resources
Who Am I?

• Professionally
  Director of UG Studies and Associate Professor at PSU - administrator, teacher, researcher, writer, involved in MAA, …

• Personally
  Husband, father of five, assistant football and baseball coach, webmaster for four organizations, Sunday School teacher, …
Who Am I?
Levels of Advising

• Pre-advising
  – Prospective students and parents
  – Possible changes of major

• Academic Advising

• Professional Advising
Pre-advising

• “So what can I do with a degree in mathematics?”

• Available books
  – *101 Careers in Mathematics* (Sterrett, ed.)
  – *She Does Math* (Parker, ed.)
  – *Great Jobs for Math Majors* (Lambert and DeCotis)
A Variety of Opportunities

- meteorology
- actuarial science
- business, psychology, social science applications, statistics
- graduate school ... college professor
- cryptography

- media
- publishing
- architecture
- law school, med school
- linguistics (language translation)
- secondary education
- Census Bureau, Bureau of Labor Statistics, etc.
Academic Advising

- Serve your students! (This was probably not emphasized as a GTA.)
- Know your major’s requirements
- Know the general education requirements of your institution
- Know your institution’s policies (e.g., Freshman Forgiveness)
Academic Advising

• Get into a routine
  – Make your own folder for each student
  – If possible, get a photo of each student in that folder
  – Keep notes from each meeting with each advisee (like a doctor’s office)
  – Make “office hours” specifically for advisee meetings each semester (near registration) and have students sign up for meetings
Academic Advising

• Have someone to call with questions
  – A colleague in your department
  – Someone in Academic Assistance or Academic Advising
  – Someone in the Registrar’s Office
• Be available but find a balance
• Hold students to timetables or 4-year plans
Academic Advising

• Bundle an academic package that suits professional goals
  – Future actuaries should take some exams
  – Business or economics minor for those going to industry?
  – Extra computer programming courses for those entering jobs reliant on computers (e.g., NSA)
Academic Advising

• Avoid common pitfalls
  – Students trying to “jump ahead” unwisely in the calculus sequence based on past work
  – Students who do not understand or pay attention to prerequisites
  – Students finding that they fall just short of minors or other special programs due to shoddy planning
Academic Advising

• Get students involved in the MAA
  – Attending conferences
  – Giving talks

• Get to know the students
  – Their goals, aspirations
  – Math Nights
Professional Advising

General Trends

• Need for upper level degrees
  – Similar to the MBA in business
• Multiple, varied careers
  – One obvious exception - college professors
• Computer programming, abilities are highly beneficial
• Need for more than a strong GPA
Professional Advising
Preparing for the Future

• Summer internships

• Research Experiences for Undergraduates (REUs)

• My own internship story: UTSA and USAA
Professional Advising  
Preparing for the Future  

• Students must be making contacts  
  – “It’s who you know, not what you know”  

• Job fairs  
  – Students should attend regardless of positions advertised (with a nice resumé in hand)  
  – Faculty should attend to make contacts and look for summer internship possibilities
Professional Advising
Graduate School

- You don’t have to send everyone to Harvard or MIT or your alma mater
- Get students involved in this process early
- Some students will need extra encouragement to go this route (Deborah, Jim)
Professional Advising
More Information

• Various WWW sites
  – Some are primarily informational (testimonials)
  – Some offer searchable job listings

• See handout