

## Southwest Network Meeting – October 21, 2006 – Tucson, AZ

### Academic Jobs in Mathematics – Advice for Graduate Students Barbara Shipman, University of Texas at Arlington

#### Tenure-track positions (assistant professor level)

The department evaluates the assistant professor each year to renew the contract for the following year. Evaluation is based on research (scholarship), teaching, and service. Typically after five years, the assistant professor submits a dossier for tenure, which is evaluated by the department, the college, and the university. If tenure is not granted, the assistant professor is typically given another year in which to find another place of employment. If tenure is granted, the rank is elevated to associate professor, and the position is automatically renewed year by year. Post-tenure review may occur after a span of six to ten years, in which the person's work is reviewed and recommendations for improvements may be given. After attaining tenure, it is optional to apply for promotion to the rank of full professor after more work has been done.

#### Research Responsibilities:

In a research-oriented institution, the research component is the critical one for getting the position renewed each year and for securing tenure. Advice: Start working on publishing papers that extend from your thesis right away so that you can have a paper submitted within the first year. Attend conferences and make research connections with other mathematicians so that your colleagues around the country (and the world) will know who you are. Later, when you apply for tenure, you will need letters evaluating your work from people in your field outside of your institution.

When you go for a job interview, make sure to ask what your responsibilities will be to earn tenure. Some places require that at least one grant be awarded to the candidate during the pre-tenure years, but this may not be typical. At least you should apply for a grant from a national agency each year since this is generally expected and can provide you with good reviews of your proposal that can lead to more ideas for research.

#### Conferences and Talks

Attend conferences in your area and give talks on your work often. It is important to keep current on the work being done in your field and to make acquaintance with others working in your field. Most conferences publish (refereed) proceedings, so this is a good way to get a paper published. Most departments, together with the college and university, offer travel funds for at least one scholarly trip per year, and possibly more.

## Teaching

Most research institutions require each professor (of any rank) to teach two courses per semester. There is often a reduction of this requirement for new tenure-track assistant professors so that new faculty can concentrate on research. It is important to teach well and to prepare well for each class. Keep a notebook of your notes so that the next time you teach the same course, you can improve on what you did before. Many institutions offer graduate student help in grading papers. This can save you a lot of time! If you are required to grade homework yourself, there are several strategies to save you time on this.

1. Assign homework for practice but only grade selected problems.
2. Have students work in groups of three or four and submit group homework papers. This reduces the pile of homework to grade and results in better papers.
3. Go over homework in office hours or recitation sections but don't collect or grade most of it. Have most of their grade based on three or four tests, which usually do not take as long to grade – rather than writing profuse comments, note errors on the test and hand out solutions.

Teaching is often the most rewarding and satisfying part of an academic career in mathematics. Make it enjoyable for yourself and for the students by thinking carefully about how to explain the concepts to someone who does not already know them! This is harder than it sounds; a good teacher must work very hard! The work is worth the effort because a good teacher can have a lot of influence on a student's life, and students will be quick to let a good teacher know that he or she is appreciated.

## Service

All departments have committees, and committee work cannot be avoided. Usually new faculty are eased into this, as they need to acquaint themselves with the workings of the particular department. Faculty are the people who make decisions on how the mathematics department runs its undergraduate and graduate programs, how it solicits and hires new faculty, to whom mathematics scholarships are given, and other such tasks vital to the health of the department. Most departments elect committee members according to their specific rules (and committees make and change these rules).

There are also opportunities for service to the college and the university. For example, professors from all departments sit on faculty senates, and colleges solicit faculty to work on and coordinate periodic reviews of other departments. Get involved where you have an interest, but be sure to focus on your research and scholarship during your pre-tenure years!

## Enjoy your work!

An academic job in mathematics gives you the freedom to choose your research projects, teach the courses that you want to teach, and have the summers to travel and pursue academic projects away from your home institution. So, work hard and enjoy it!