THE ASSISTANT PROFESSOR'S GUIDE TO THE GALAXY
or
How to Survive and Succeed in Academia

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Originally prepared for the Computer Science Department,
now somewhat revised and updated

1. Introduction

Welcome. You are now an Assistant Professor. You have moved from being a graduate student to having your own office and your own telephone. You are now responsible for classes, and students address you as "Dr." But, along with the new privileges and responsibilities of your position, come unstated expectations. In some mysterious way you are expected to become a famous researcher who will easily qualify for tenure and promotion in *5* or 6 years.

The purpose of these notes is to help clear away some of the mystery of this process, so that you can understand what is expected of junior faculty, plan your professional activities and set your priorities in such a way as to achieve success in your academic career.

2. The review process

A new faculty member is expected to be active in research, to be a good teacher, to help the department, to be visible in the profession and to achieve professional recognition. Usually at the end of the fifth year of service, or beginning of the sixth year, the department (maybe through the senior faculty) will examine your record. If it is sufficiently strong, letters of evaluation will be solicited from outstanding people in your specific area of research, plus some in the wider discipline(s). Based on these letters and the faculty's evaluation of your overall academic record, they will vote on whether to recommend you for promotion and tenure. A dossier will be prepared (usually by the Chair's office) including your resume and a list of your publications, grants, and talks; a personal statement by you; information on your teaching, professional activities, and your service record; and copies of the letters of evaluation. (Details on the contents of the dossier are posted at http://www.usc.edu/policies)

The dossier, including letters from a faculty committee and the Chair's recommendation, is then forwarded to the School of Engineering Committee on Promotions and Appointments. A subcommittee (which does not include representatives of our own department) reviews the dossier and makes a recommendation to the full committee, which then votes on the case. The committee's recommendation is transmitted to the Dean. Assuming that the dossier is strongly positive, the Dean writes his letter recommending you be granted tenure. If either the department or the Dean recommends favorably, the dossier is passed to the University Committee on Appointments, Promotions and Tenure, where a panel studies the file and meets with the Provost. If the Provost's decision is yes, the faculty member receives a letter stating that the President of the University, acting on the advice of this committee, has approved promotion and tenure. The entire process takes several months.

The above description summarizes the process. More details can be found in the UCAPT Guidelines, on line. Unfortunately, this rather cold summary does not really tell you what is expected of you, what the criteria are, and how to allocate your time and energy in order to succeed.

3. The major criterion

Achievement of tenure at most research-oriented universities requires that the candidate be viewed by senior researchers in his or her field as: (1) having made significant research contributions and (2) showing promise of continued productivity. While quality teaching and service to the University and the profession contribute to the overall academic profile of the candidate, they do not take the place of research contributions. These notes have been prepared to provide some guidance to Assistant Professors during their early years, so that they can plan their professional activities in such a way that their chances of recognition and promotion are maximized.

4. Research

We assume that your academic career begins with a fundamental commitment to research. For many new faculty members, this means continuation or extension of work they did on their dissertation. For others, it means a start or exploration of ideas which they may have considered in graduate school, but never had a chance to pursue before. For still others, it means an opportunity for cooperative research projects with colleagues. Whichever option fits you, it is essential that a major time commitment to research be made immediately. One cannot wait for a year or two to start research. The discipline required for achievement must be present from the beginning, as research is balanced against other demands on one's time, like teaching, counseling students, service to the department, professional society activities or consulting, and one's personal life. From a purely pragmatic point of view, many journals have a 2 year publication delay. Hence, waiting 3 years to submit the first journal paper may mean 5 years before it is published. But more importantly, there is a discipline and commitment associated with productive research, which must be achieved early. It becomes more and more difficult as time passes.

There are two fundamental aspects to academic research: (1) obtaining research results and (2) communicating them to the academic community. The second issue is discussed below in Sections 5 and 6. Here I would like to offer a few suggestions with respect to the research process:

a. Some new faculty members have a tendency to read the work of others too long before starting their own work. Clearly, one must be aware of the previous and current work in one's field, but there is always more to read. A good strategy is to divide your time between developing your own results and continuing to read the literature.

b. In the choice of a research direction, it is desirable to pick one or two general areas and go into them deeply, rather than having a shotgun approach and jumping from one problem to another.

c. It can be stimulating and useful to work with collaborators. Collaborative work may produce new ideas and fresh approaches to old problems; discussion with colleagues may help you to find a way out when problems seemed intractable. However, it is important that you maintain your own identity in collaborative projects. And extensive continued collaboration with your former mentor, or exclusive collaborative work, may raise eyebrows. More on this later.

Let us now consider the communication of your results to others.

5. Publication

Assume that you have research results. Clearly, they must be published to become part of the accessible accumulative body of human knowledge. Without publication and presentation at professional meetings one cannot hope to achieve professional visibility.

Ideally, good results should be published in major refereed journals (In some fields, it is the university press book which is the gold standard, and in others, artistic creativity or impact on public policy is highly valued.) In some fields, junior faculty may find it difficult to be published in the major journals unless they have a well-known researcher as a co-author or the results are so outstanding that they will survive the arduous review process. I recommend a two-step process: first, present the results at a conference, preferably a reviewed meeting (or, in some fields, workshops at top universities.) Use the discussion and comments of your peers to review and strengthen the paper, and then, second. submit it to a top-notch refereed journal. (In some fields, submission to the premier conferences in your field may be an intermediate step.)

It is not possible to state exactly how many papers are needed to achieve tenure. Clearly one outstanding paper which wins a prize and is viewed as a substantial contribution is more valuable then 10 mediocre papers. However, it is fair to say that in some disciplines the USC promotion committees expect to see about two conference papers and one journal publication per year. While there is considerable variation, this number is still useful as a guideline. In other fields, what is expected is a substantial and well-reviewed university press book, a second book project well underway, plus some articles in top journals. In still other fields, receiving important research grants through a rigorous peer review process is an important sign that your research is well-respected. And still other disciplines have there own expectations. To know what is expected in your own field, look at the records of those currently receiving tenure in the leading departments, and talk with a number of senior faculty.

Nevertheless, it should always be remembered that the impact on the research community is what matters, not numbers. No one gets tenure for sheer quantity of articles. It is simply a fact that some minimum publication frequency is needed by most people to become visible. I urge you to keep the next deadlines for important conferences posted near your desk as a reminder that there should be a continual flow of manuscripts from your office. In view of the pressures of teaching during the semester it may be difficult to get much research completed during the academic year. Nevertheless, for those in my own field, I recommend aiming at submission of a paper per semester, followed by one or two during the summer.

Papers reporting collaborative work will have co-authors. It is sometimes possible for collaborators to be significantly more productive than either investigator working alone and, for those in my own field, I strongly encourage such collaborative research. However, bear in mind the fact your own contribution must be identifiable. Review committees must decide whether a candidate was a major or minor contributor to co-authored work. Even in my field, it is desirable for you to publish some of your research results alone. And in some other fields, co-authored work will lead to questions on whether you are an independent scholar making your own contribution.

A comment needs to be made about publication in magazines and other non-scientific media. In short, they should probably be avoided, unless done for recreation and. with very little effort. They do not convey the image of serious research commitment.

Review articles are not as clear. They are not original research contributions, and they take a great deal of time. On the other hand, they may lead to a great deal of visibility in the community. I believe that they should be undertaken only if their preparation will help you in your own research, and not just to obtain "another publication". A similar note of warning needs to be issued in connection with book chapters. These are also considered to be compilations of existing work, rather than original research contributions, and they tend to take an enormous amount of time. They should be undertaken with a great deal of caution. (I wrote some as an Assistant Professor).

Finally, we have books. In my own field, I believe that books should be written by tenured faculty; for junior faculty, it may be a choice between a book and promotion. But in other disciplines, such as the humanities, an excellent book and progress toward a second is the baseline expectation for the candidate for tenure.

6. The research community

Early in your career you should begin to develop a list of the 10 to 15 most influential researchers in your field. These are the people whose fundamental contributions are often cited. They may be featured speakers at conferences; they may chair the technical program committees, be distinguished speakers at USC or other universities, etc. As you prepare your manuscript for publication, I suggest you also publish it as a technical report and distribute copies to the people on this list. (In disciplines that don't publish technical reports, an equivalent may be circulating drafts for comment.) Make it a point to visit other universities (preferably where the leaders are located) and give seminars on your work. If you see leading scholars at meetings, try to discuss your research results with them. These steps will increase the awareness on your work in the community, so that when the Department writes for letters of evaluation your research will already be known. C early, none of these steps are needed if your work is genuinely superb. Then, a few published papers will be noticed and highly regarded, whether you ever attend a meeting or not. However, most research contributions are incremental rather than revolutionary, and must be discussed to become known and have an impact.

Do not neglect the community of your colleagues on the campus. You should also plan to give seminars in your department, discuss your research with fellow faculty members and show them drafts for comments, participate in experimental seminar courses, and distribute copies of reports and papers to potentially interested colleagues. Seminars at neighboring institutions are also valuable; they provide additional feedback on your work and increase self-confidence.

7. Graduate students

You will encounter two points of view with respect to the question of working with graduate students. One opinion holds that assistant professors should do their own work and only direct the work of students later in their careers. The other side of this issue is that good students can multiply your effectiveness and increase your productivity. I believe that the latter is particularly true in connection with experimental research, where student help with implementation and software development can make the difference between success and frustration. Where theoretical research is concerned, the choice is more personal. Some people are quite content to work in isolation. Others prefer to have students work on related aspects of the same problem on which they are working. I have found work with graduate students very stimulating, with a couple of exceptions, when I (temporarily) tried to work with students of mediocre ability. In such cases, the experience was a largely unproductive expenditure of time.

In my personal work with students, I set goals for them and insist that they document their progress with draft manuscripts. My work with them on these drafts often leads to conference papers. My students always publish before they finish, sometimes jointly with me and sometimes on their own, depending on the degree of my own involvement.

One final observation on this matter: Guidance of doctoral students is central to the work of a professor in a research oriented university. In a research institute one's only function would be to do research, but at a university we also inspire and guide graduate students. Our former students then carry our vision of important research problems and methodology to other institutions. For this reason, review committees at all levels look for work with

doctoral students in examining a candidate's dossier. For most of us, work with students is rewarding and stimulating and increases our productivity.

8. Research funding

Of course, it is difficult to have students if one cannot support them. Yet, student support is only one of the reasons to apply for research grants. The most important one is that grant applications are reviewed. Hence, a good proposal will reflect favorably on a faculty member's reputation and enhance his or her visibility in the profession. I am continually amazed when I discuss junior faculty with col1eagues elsewhere to hear phrases like: "Oh, yes, I know of this person. I reviewed a proposal of hers; it was a good one." Faculty committees reading a tenure dossier will look to see whether you have been awarded one (or several) significant grants, whatever is usual for respected scientists in your discipline.

The second major reason for obtaining your own research funding is that it gives you freedom to make your own decisions with respect to travel, equipment purchases, software purchases, and research assistantships. In some fields, it is more than that: substantial external funding is an absolute requirement to conduct serious research, and it just won't be possible without them for you to carry out your research program.

For these reasons I strongly believe that new faculty members should begin to apply for research funding very soon. At USC there are also Zumberge ZRIF grants, and some government agencies have grants which are somewhat easier to obtain than regular grants since the competition consists only of junior faculty. In some cases it is desirable to apply for the first grant jointly with a senior member of the faculty, establish one's reputation, and then apply separately.

Whatever the model you choose, I urge you to think of research ideas in terms of both publication and grant proposals. And you must clearly understand whether your field has the expectation that you be the P.I. (not the co-P.I.) on a large and important Federal grant (like the R01 grants of the NIH); perhaps there is an expectation of several such grants.

9. Teaching

I believe that it is essential to be a good teacher, to prepare for classes, to go beyond the textbook, and to spend time with students. Teaching can be an extension of our research, since it forces us to understand the fundamental ideas in our fields and explain them to others, thus improving our own understanding. This often leads to papers which are more clearly written and more easily understood. Obviously, every seminar and every presentation at a scientific meeting is another teaching experience.

However, having said that, let me add that your evaluation in the University is based on research, teaching and service. In a research-oriented ("publish-or-perish") University, research must be the primary evaluation criterion. Hence, I advise you to be a good teacher, but not to the point where devotion to teaching will seriously interfere with your research. This is a hard choice, but it must be made by all of us. Furthermore, Special Topics courses and graduate seminar courses can become an integral part of your research program. It needs to be emphasized that good teaching can go hand-in-hand with good research. To encourage and reward good teaching, at USC there are annual awards to the best teachers.

10. Professional societies

My advice is to participate, be visible at the major conferences in your field, but don't get so involved in professional activities that it takes a significant amount of time away from

research. Participation on Program Committees of important conferences is a different question; this is clearly important and useful in terms of professional contacts and it gives one the opportunity to learn quickly of related work going on in other places. Reviewing papers for professional journals falls into the same category; it is a lot of work, but useful and important. On the other hand, serving on a local arrangement committee for a conference may not be professionally useful, depending on the circumstances.

11. Service to the Department

This also falls into the category of things that must be done, even if they do not contribute directly to one's research. We try to keep the number of committees and related responsibilities as low as possible for junior faculty. It is impossib1e to eliminate them altogether, or the department could not function. Furthermore, even if we had paid staff to do all the committee work for us, I am not sure it would be good, since we would have no sense of participation in our own growth as a department.

12. Is there no time for fun and family?

If you are blessed with a family, particularly if you have young children, of course you must devote time, attention and love to them. If you become a new mother or father during the pre-tenure period, the University encourages you to request both a paid leave at the time, and a one-year extension of the tenure deadline (which should be requested at the time, not years afterward.)

And of course there is time for relaxation, for sports, and for socializing. In fact, the old adage that "all work and no play makes one a dull person" is certainly true. Furthermore, recreation is essential for continued creativity.

But having said that, let me add that, with the exception of a few brilliant souls, you will need more than 40 hours per week to accomplish the goals outlined here. Nearly all Assistant Professors either work late part of the time, or take work home with them or work part of the weekend, or some combination of the above.