

## **Implementation of the CNS Department Chairs' "sign off" Policy in the Astronomy Program**

(Shardha Jogee, Astronomy Department Chair, Dec 18/2016)

### **(I) CNS Department Chairs' "sign off" Policy for Acceptance of Graduate Students**

CNS has instituted a new policy assigning Department Chairs the responsibility to approve the acceptance of new graduate students by faculty members appointed in their Departments. This policy, effective as of November 2016, is outlined below:

#### ***Chairs' responsibilities for approving faculty members accepting new students***

*Each fall, Chairs should review resources (grants, endowments, start-up funds, etc.) available to each faculty member appointed in their Departments to determine which individuals have sufficient financial resources to recruit new graduate students and/or accept continuing students into their labs. If someone's resources appear inadequate, the Chair, in consultation with that faculty member, should determine if it is appropriate to subsidize that individual's research program with shared Departmental resources, and for how long.*

*Having made these determinations, Chairs will inform affected faculty and appropriate graduate program personnel – in whatever manner is most appropriate to recruiting practices in their disciplines – of their decisions to “sign off” on a faculty member accepting one or more new students. In so doing, Chairs should remember that some faculty members participate in more than one Graduate Studies Committee. By signing off, i.e., by implicitly or explicitly allowing a faculty member to recruit students, a Chair is committing that, should that faculty member default on providing necessary student support, the Department will accept the full responsibility of providing that support.*

### **(II) Implementation of CNS Chairs' "sign off" Policy in the Astronomy Program**

The following considerations guide the implementation of the CNS Policy in the Astronomy program. We refer the reader to Appendix A for financial information relevant for the support of our graduate students.

**1) A Top-Tier Astronomy Program:** We are one of the top-ranked Astronomy programs in the world, and we lead research that contributes to UT Austin's 2015 ranking in Space Science as 10th worldwide and 4th among US public Universities (US News & World Report). In order for us to advance our standing as a top-tier program, it is vital for us to *recruit and support the best human capital: top-tier faculty, researchers, and graduate students.*

**2) Recruiting and Supporting Excellent Graduate Students:** In order to recruit top-tier graduate students, we need to *provide cutting-edge research opportunities* and offer competitive support packages, which provide *5 years of guaranteed support, and ideally include multi-year fellowships and GRAs.* Many peer competing programs such as Harvard, Caltech, Arizona, UCSC, and UC offer at least 5 years of support and often include several years of *fellowships, GRAs, and other incentives.*

The amount of funds available to the department for graduate student support (recruitment of new students and support of existing students) is ~\$130 K (Appendix A) and **is over a factor of 10 smaller than the yearly cost of supporting our 35 graduate students** (\$1.6 M without IDC). While external fellowships (e.g, NSF, NASA, DOE, DOD) and CNS/Graduate School fellowships can provide some support, only a modest fraction (14% to 24%) of students have been supported by these fellowships in the past four years. We are intensifying our philanthropic efforts (see point 3) to secure summer fellowships and hope to make significant headway in the next few years, but at the present time, we have only 2.5 endowed summer fellowships. Therefore, at the present time, in order for our program to offer competitive packages and honor our commitment of 5 years of support, most of the funds for graduate student support must be provided by faculty and research scientists in the form of GRAs and TA supplements, which can be combined with departmental TAs.

**3) Summer Support:** Summer support (with cost per student of ~\$10.3 K without IDC in FY2016; Appendix A) is the weakest link in our graduate support system due to the lack of TAs over the summer. Our summer courses have been cancelled by CNS in the last two years due to insufficient enrollment.

The department currently awards two summer fellowships (Goetting Endowed Presidential Scholarship and Benfield Memorial Scholarship) based on merit each year. By combining these endowed fellowships and department reserve funds, the department is currently able to support at most ~4 students over the summer. Students not on fellowships are typically assigned specific duties in exchange for support.

As Department Chair, I have been working on philanthropic initiatives to set up additional endowed summer fellowships ( $\geq$ \$250 K capital). It is better to raise endowments rather than one-time funds because endowments provide permanent support and avoid the problem of donor saturation, which we are starting to see. We have raised half (~\$130 K) of the Lambert Endowed Summer Graduate fellowship and can now use it every two years for summer support of one student. We aim to raise several more endowments in the next years with targeted solicitations.

In the meantime, we need to consider other creative options for summer support, as outlined in point 4c).

**4) Excellence in Research and Faculty Support:** In order for our program to maintain excellence in research, it is important that faculty with a competitive research program have access to graduate students or postdocs. Some faculty, particularly those without endowed professorships or chairs, face challenges in supporting their students for 5-6 years due to the difficulty of getting federal grants (whose success rate is typically less than 25 % nationally) , and/or due to the short duration (typically 3 years or less) of many federal grants from NASA or NSF. The department will make a best-faith effort to help qualified faculty, but due to the budget constraints mentioned in point (2), the department can only provide limited assistance and this assistance must be shared between all faculty who have sought external support for their student(s), but not secured it.

At the present time, the *maximum* assistance that the department can typically provide each year consists of *TA supplements for up to 3 students in Fall and Spring (at a cost of ~\$12K without IDC) and summer support for up to 4 students, (at a cost of ~\$42 K without IDC).*

In order for the department to be able to share resources among faculty, it is important that each and every faculty member adopts a responsible code of conduct and the following principles:

- a) A faculty member can recruit/accept a new/continuing graduate student only if he/she can commit to providing the minimum level of support required under the plan outlined in point (5).
- b) Research supervisors must use every source of funds available to them for supporting their graduate students before asking the department for financial assistance. In particular, it is recommended that research supervisors use their endowed professorships, endowed chairs, and federal grants to support their graduate students before paying their own summer salary, or recruiting postdocs. Research supervisors who prefer to hire postdocs rather than graduate students are free to use their funds to support the former, but should not expect the department to carry the burden of supporting their students, other than providing available TAships for which the research supervisor pays the TA supplements.

In AY 2016-17, the *minimum cost to support a student per year is ~\$13.8 K without IDC* (Appendix A) and corresponds to the case where the student is a TA for two long semesters and the advisor funds the two TA supplements and the support for one summer.

- c) Research advisors need to be pro-active and creative in solving the problem of summer support as the department has extremely limited funds to support students over the summer when TAships are unavailable. In addition to point 4b), research advisors should consider the following:
  - i) Research advisors who cannot support their student in the summer must work jointly with the student *to send an email in the preceding Fall or Spring to all faculty, research scientists, and postdocs in our program, as well to external collaborators, to secure a summer GRA or other form of summer support for the student.* While this arrangement may reduce the time the student can invest over the summer toward the project with the research advisor, it will nonetheless provide the student with financial support, useful research experience, potential publications, and a wider network of collaborators or letter writers. Research advisors who do not follow this step will not be competitive to receive summer support from the department.
  - ii) In the current funding climate, it behooves *us to advance our research program by fostering internal and external collaborations.* For example faculty members should consider co-advising graduate students whenever possible in order to increase the "research mileage" of their grants, and help others who may not currently hold a grant. External collaborations where students can benefit from

research opportunities or summer internships (e.g., SANDIA, STScI, Max Planck Institutes, Astronomy institutes in Mexico taking advantage of fellowships from ConTex, the new research and education collaboration between The University of Texas System and CONACYT) should also be considered.

- iii) As a last resort, research advisors who cannot support their student(s) in the summer and have no other option, can explore whether the student is interested *in taking a 30 hours TAsip in the Fall and Spring* (as opposed to the standard 20 hours TAsip), and *saving the stipend from the extra 10 hours of TAsip each semester toward full summer support*. This option is viable only if the student is eligible and the department has enough TAsips to support this arrangement. Note that first-year students and international students are not eligible as UT rules do not allow them to TA for more than 20 hours a week.
- d) Faculty members who have an endowed professorship or chair are encouraged to use their endowment *to pay as much as possible of the minimum cost per year per student*, which is ~\$13.8 K without IDC in 2016-17 (Appendix A) . At the present time, the income of endowed professorships is divided between salary supplements and research support, and the latter can only support a fraction (typically ~50%) of the afore-mentioned minimum cost per year per student. It is possible for us to have a discussion with the Dean's office to explore whether endowed professors can be given the flexibility in moving some of their salary supplement to research support, should they wish to do so. If this arrangement is approved, it will give faculty more flexibility to use their endowed professorship for research support.
- e) For research supervisors who have unsuccessfully sought external support for their student(s) and who have followed step 4a) to 4c), the department will consider providing support for one student for up to two summers over a period of six years, if funds are available.

**5) Implementation of the Dean's Chair "sign-off" policy in the Astronomy Program:** Our implementation of the Dean's Chair "sign-off" policy in the Astronomy Program takes into account points (1) to (4) above. We will circulate a spreadsheet and cover form to faculty and research scientists to submit their funding plan to the Chair. **All faculty members and research scientists who currently have students or plan to recruit/accept one or more new/continuing graduate students should submit the funding plan outlined below to the Department Chair by January 20, 2017.** The Chair will evaluate the plans, discuss with the research supervisors as needed, and decide whether to sign-off on plans to recruit/accept one or more new/continuing graduate students. In the event of a budgetary or other emergency, the Department Chair reserves the right to change any aspect of this plan and to limit the number of admission offers made in a given year. The Graduate Admissions Committee, academic program coordinator, GSEC, and other relevant personnel will be informed which research supervisors have been approved for recruiting/accepting one or more new/continuing graduate students.

- a) The funding plan of each research supervisor should outline the *funding plan for the next four years for each current graduate student and each new/continuing graduate student* he/she is considering. The funding plan should include funds divided into some of the categories below:
- G\_F1: Guaranteed research supervisor's funds (e.g., from awarded grants, endowed professorships or chairs, fellowships, start-up funds)
  - G\_F2: Guaranteed funds from fellowships (e.g., Department, CNS, Graduate School, and External Fellowships)
  - P\_F3: Planned research supervisor's funds (e.g., based on grant proposals submitted or planned to be submitted)
  - R\_F4: Limited funds requested from the department (e.g., to fund TA supplements)
- b) In order to recruit/accept new/continuing students, advisors will typically need to provide
- i) ***Guaranteed support (G\_F1+ G\_F2) to fund the minimum level of support for all his/her students for the next two years.*** The minimum level of support includes support for two summers and TA supplements for four semesters. As of FY2016, this would cost ~\$27.6 K without IDC per student for two years (Appendix A).
  - ii) A plan for funding the minimum level of support for all his/her students for two extra years through a combination of guaranteed support (G\_F1+ G\_F2), planned support (R\_F3), and funding requests (R\_F4) to the department. As per points (2) and (4), please note that funding requests (R\_F4) to the department should be reasonably small.
- c) We recognize that some cases may deserve special attention. The department Chair will make a decision on a case-by-case basis and take into account relevant special circumstances, to the extent possible.

### **(III) Implications of our CNS Chairs' "sign off" Policy for New and Continuing Students**

**1) Admission of Top Students:** In the past, we have typically offered the top ~10 students (as ranked by the Graduate Admissions Committee) unbound admission, whereby *the student can work with any research advisor they choose upon enrollment, and whereby the department does not require any research advisor to commit funding for support before admitting the student.* Our yield (enrollment success) for the top 10 has been ~11/60 or 18% on average over the past six years, with the largest annual yield being 40% (4/10), and it shows large variations, which are hard to predict (Adam Kraus, private communication).

With the possibility of an unexpectedly large yield in any given year, the department *incurs a significant financial risk in overbooking* and offering unbound admission to top students. In the interest of advancing excellence and recruiting the very best students, *I am willing to continue taking this risk and making unbound offers to a number ( $N_{unb}$ ) of top-ranked students, where  $N_{unb}$  is between 5 and 10. The exact value will be determined each year via discussions with the Graduate Admissions Committee.* The following guidelines apply to these students:

- a) For these top  $N_{\text{unb}}$  students with unbound offers, the department will try to provide a seed funding package (typically the minimum support for one year, consisting of support for 1 summer and TA supplements for 2 long semesters). Research advisors who want to recruit these students are encouraged to add additional funds in order to build a competitive package. Note that competing top-ranked astronomy programs are offering multi-year GRAs or fellowships. The Admissions Committee and/or sponsoring faculty should also nominate these top-ranked students for CNS and Graduate School (GS) fellowships (e.g., GS Harrington fellowships, GS mentoring fellowships, CNS Dean's Strategic fellowships, McNair fellowships).
- b) If one of the top  $N_{\text{unb}}$  students enrolls in our program, it is likely that he/she would have chosen a research supervisor who is offering *both* a competitive research project *and* a competitive support package. However, there is also a finite probability that a top-ranked student enrolls in our program with only the seed funding package (typically, the minimum support for one year) offered by the department, and decides later which research supervisor he/she would like to work with. In such a case, the selected research supervisor will be asked to provide the Department Chair with a funding plan (Section II point 5), but will have the advantage that the department is already providing the minimum support for one year. If the selected advisor is absolutely unable to meet the minimum requirements of the funding plan, and if the student is not interested in working with other advisors, the department will work with the advisor and student to find a funding solution.
- c) If one of the top  $N_{\text{unb}}$  students enrolls in our program with the intent of working with a given research supervisor, but eventually selects a different research supervisor, we will follow the same general principles outlined in point (b) above, provided the student is in good standing.

**2) Implications for Students who Change Research Supervisors after Admission:** Our

program will still aim to provide flexibility for graduate students in good standing who wish to change research supervisors for valid reasons. I propose the following plan:

- a) For students who were given unbound offers, the department will try to offer maximum flexibility, as outlined in point (1), as long as the student is in good standing.
- b) For students in good standing who were admitted with a financial offer tied to a specific research supervisor, the new potential research advisor must take over the responsibility of financial support and present a funding plan for approval by the Department Chair, as outlined in Section II point (5). If the Chair signs off on the plan, the new research advisor can take on the student.
- c) During the transition phase where a student in good standing does not yet have a clearly designated new research supervisor, the department will make a best-faith effort to support the student for a defined period of time (typically less than a semester).

## **Appendix A: Financial Information Relevant for Graduate Student Support**

### **1) Department funds for graduate student support**

a) The main source of funds available to the department for recruiting new students and supporting existing students, listed below. These funds are very small compared to the annual cost of ~\$1.6 M (without IDC) to support our 35 graduate students.

i) CNS recurring: \$38,040/year

ii) Department Cox Funds: \$50,000/year

iii) CNS one-time bridge funds are tapering down and will be non-existent after 2019-20.

- 2015-16: \$52,140
- 2016-17: \$39,760
- 2017-18: \$22,380
- 2018-19: \$17,380
- 2019-20: \$12,380
- 2020-21 onward: \$0

iv) Extra CNS or Graduate School fellowships we compete for

b) *Endowed fellowships for summer support:* We currently award two summer fellowships (Goetting Endowed Presidential Scholarship and Benfield Memorial Scholarship) based on merit each year. We are working on philanthropic initiatives to set up additional endowed summer fellowships ( $\geq$ \$250 K capital) and are half-way through a third endowed summer fellowship.

c) *Discretionary/reserve funds are extremely limited* over the next few years. We successfully secured approval for several new faculty hires over the next few years (2017-2020) and this required commitment of our saved and discretionary funds for faculty start-ups.

### **(2) Cost of graduate student support in Astronomy**

a) *TA supplement:* As of 2015, the Astronomy GRA rate has increased to \$28 K/year. CNS requires us to match the TA stipend to our GRA rate of 28 K/year. In AY 2016, the CNS TA stipend is \$24,720/year and the TA salary supplement is \$1230 in each long semester (Fall or Spring). The TA Tuition Reduction Benefit given by the Graduate School falls short of the actual tuition and we also need to fund a TA tuition supplement of \$516 in each long semester. The combined supplement for the TA stipend and tuition is referred to as the TA supplement or "TA gap" and in AY 2016-17 amounts to (\$1230+ \$516 ) or \$1,746 in each long semester.

b) We currently have 35 graduate students. The cost per student per semester is listed below.

- Fall GRA support w/o ID ~ (\$10.5 K + Tuition~\$4.3 K + Insurance~\$2.6 K) ~ \$17. 4 K
- Fall GRA support w/ IDC of 56.5% ~ \$24.8 K
- Fall TA support ~ (TA supplement of \$1230+ \$516 ) ~ \$1,746

- Spr. GRA support w/o IDC ~ (\$10.5 K + Tuition~4.3 K + Insurance~2.6 K) ~ \$17.4 K
- Spr. GRA support w/ IDC of 56.5% ~ \$24.8 K
- Spr. TA support ~ (TA supplement of \$1230+ \$516 ) ~ \$1,746
- Summer GRA support w/o IDC ~ (\$7 K + Tuition~\$1.6 K + Insurance ~\$1.7 K) ~ \$10.3 K
- Summer GRA support w/ IDC of 56.5% ~ \$15.2 K

c) Some implications:

- ***The annual cost per student on full GRA support is \$45.1 K (w/o IDC) or \$64.8 K (with IDC) in AY 2016-17.***
- ***The minimum cost per year per student to the advisor is \$13.8 K (w/o IDC) or \$18.7 K (with IDC) in AY 2016-17.*** This corresponds to the case where the student is a TA for 2 long semesters and the advisor funds the TA supplements (2 x \$1746) and summer support (\$10.3 K or \$15.2 K).
- Number of graduate students: 35(2014-15), 39 (2015-16) 35 (2016-17).
- In 2014-15: 54% had TAs, 26% had fellowships, the rest had GRAs.  
In 2015-16: 38% had TAs, 26% had fellowships, the rest had GRAs.