



**INDIANA UNIVERSITY**

**THE UNIVERSITY GRADUATE SCHOOL**

**AGEP RESOURCE MANUAL FOR STEM DEPARTMENTS**



Resource Examples Based on the  
Alliance for Graduate Education and the Professoriate Grant Program

July 2010



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## Introduction:

### *Purpose*

The purpose of this toolkit is to assist Indiana University departments, graduate programs and faculty in broadening the participation of underrepresented minority students (URM) in the sciences, technology, engineering and mathematics STEM graduate programs. Specifically, this toolkit is designed to assist in the recruitment and retention of URMs. We hope to spark ideas, provide facts and offer tools which will assist you in successfully making your graduate program welcome new students, support young researchers and prepare future faculty in STEM.

*Our goal is to use the National Science Foundation's Graduate Education and the Professoriate (AGEP) resources to help in the development of new, pragmatic, innovative best practices. By strengthening practices that are already in place, this toolkit will better assist in reaching more prospects, receiving a larger number of applications from diverse students and making better matches.*

Being proactive, being specific, dedicating time and attention, not just a single 'event' but an ongoing process is the objective. Students prefer to apply to programs and schools that are seen as fair, non-discriminatory and socially responsible.

### *Why was this booklet created?*

In the first phase of the Midwest Crossroads AGEP grant with Purdue and Northwestern Universities, Indiana University faculty and students requested that a helpful recruitment primer be assembled and disseminated for departmental use. Departments are the unit of change. NSF and AAAS Pipeline issues differ among the disciplines. For some disciplines, not enough applications from URMs are being received. For others, not enough offers of admission to URMs are being made. And for others, not enough offers of admission are being accepted by the URM applicant. By answering the recruitment questions included in this toolkit, you will have the opportunity to identify which issue relates to your graduate program.

In the following pages:



Questions identified with this icon are meant to help you identify potential gaps in your program.



Suggestions identified with this icon are meant to help you select the appropriate tool for your program.



Summary for quick reference and use.

## Recruitment:



Whose job is it to identify underrepresented and minority prospects?

1. Graduate School
2. School or College
3. Department and the dept/ admission committee
4. Faculty member
5. All of the above

Answer: 5: all of the above

### Diversity-Building Recruitment Strategies

#### 1. Have a plan

Graduate departments and programs need intentional and focused recruitment strategies for effectiveness and broader impact in the discipline.



- What are the biggest recruitment challenges for your program?
- What message is being given to prospective students? (About your programs' admissions process, retention and graduation rates?)
- What are your enrollment goals for 2011-12?
  - (1) demographics;
  - (2) quality – GRE scores & GPA;
  - (3) research experience'
  - (4) other

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## 2. Marketing your graduate program



The successfulness of a program is often dependent on how well you market the concept. Students' unawareness of opportunities will prohibit them from taking advantage of available programs. With today's current media, marketing tools, and resources there are a variety of ways to get your program's message heard. By using a combination of each of these media resources your program will be implementing a well rounded marketing campaign.

- What medium do you use to communicate this information (website, program profile booklets and brochures, presentations, conferences)?
- What is the reach of your communication and marketing within minority groups?
- Who responds to your communication? And why?
- How is your information disseminated?
- When is your information being shared?

### The Recruiting Cycle

<b>September</b>	Building your prospective pool Generate inquiries
<b>October</b>	Building your prospective pool Generate inquiries
<b>November</b>	Building your prospective pool Converting inquiries into applications
<b>December</b>	Converting inquiries into applications Reading & deciding on applications
<b>January</b>	Heavy application period begins Reading & deciding on applications

<b>February</b>	Reading and deciding on applications Converting accepts into confirms/deposits
<b>March</b>	Reading and deciding on applications Converting accepts into confirms/deposits
<b>April</b>	Graduate school common reply dates (CGS, GMAC, LSAC, etc.)
<b>May</b>	Following up (holding) confirms/deposits Reading & deciding on late applicants
<b>June</b>	Following up (holding) confirms/deposits Program evaluation and planning
<b>July</b>	Professional development & staff training Rest, relaxation and recharge
<b>August</b>	Finalize classes, orientation and registration Cycle starts again

### 3. Tapping New Talent: Identifying prospects

How can you find students who are ready for grad school and specifically your program?



Cultivate minority pipelines of applications for graduate admission

#### Informal Networks:

- Identify top minority students from other Big 10 who could become IU graduate students. Invite these students to visit IU, create a departmental budget to provide travel funds
- Seek out “diamond in the rough” or promising minority students, provide tutoring and mentoring
- Create, implement an incentive plan or program to encourage current graduate students to refer names of friends
- Increase communication with minority serving institutions i.e. IU STEM Initiative
- Identify and contact program alumni, encourage them to direct their minority students to IU
- Locate students with industry internship experience (contact industries)
- Encourage minority industry and governmental scientists to apply
- Supplement masters program students with one year “bridge program” if needed

#### Accessing Databases:

- Data mining: purchase GRE scores (\$200 GRE participation rate, the first set will be \$0.38 and all other sets will be \$0.18.)
- Identify students who participate in research programs such as national labs, LSAMP, CIC SROP, McNair Scholars programs, IU STEM Initiative
- Use national directories of underrepresented students i.e. McNair Scholars database, Name Exchange
- Access information from the CIC FreeApp or Project 1000 programs regarding students interested in graduate education
- Use national database (webcaspar) data identifying institutions conferring BS degrees in your discipline to large numbers of minority students

#### Recruitment through service:

- Host regional research symposium inviting promising minority students to attend
- Participate in minority science organizations by serving as a judge, speaking at research conference
- Offer collaborative summer research programs/projects sponsored by external grant sources
- Encourage visiting lecturers and speakers to bring their students to IU during visits

#### Outreach to pipeline programs:

- Identify and attend discipline-based organizations and minority research conferences (e.g.: ABRCMS; SACNAS; AISES; NOBCCHE; NSF programs such as LSAMP, HBCU-UP, TCUP; National Council on Undergraduate Research, and other recruitment venues
- Advertise in minority serving publications such as *Winds of Change* and frequently accessed websites like <http://www.sacnas.org>
- Tap into current minority recruitment connections with schools: IU STEM Initiative, CIC Graduate School Recruitment
- Participate in GU2IU fall recruitment programming which includes inviting minority students for campus visits prior to graduate application submission

#### 4. Finding a good fit

Departments should consider selecting and admitting students with the “best fit”.<sup>1</sup>



What does a “good fit” or the “right fit” mean for your graduate program?

What does your admission committee look for?

- Intellectual curiosity, engagement and motivation
- Ability to think critically
- Openness to new ideas and methods
- Student research experience
- Writing ability – statement of purpose, articles
- Test scores – what should they be?
- Recommendations – from whom?
- Academic record – what classes taken, what grades earned?

What minority students are looking for when researching graduate programs?

- Departmental strengths
- Interdisciplinary focus
- Collaboration with other disciplines exist for research projects
- Support system in place (weekly group projects, study groups, peer mentoring) (see Appendix C)
- Strategies for how to survive in graduate school
- Expectation of student success for all students
- Percentage of students who get offers of admission in your program/department by gender, ethnicity/race, citizenship



Are there gaps between minority student expectations and what your department takes into consideration?

## Program Profile:



What does your program offer its students?

- List benefits of IU experience and degree, and how its different from other programs
- Identify what other programs offering their prospective students? Competitive funding, peer mentor programs, first year seminar, prep seminars for qualifying exams, travel funds, faculty led efforts, etc
- How and when does the department convey this information to students?

## **5. Moving from prospect to applicant**



- Provide timely, consistent and clear details about the admission process and decision timeframe for your department (website, email and phone communications)
- Follow up is critical – via cell phone, emails, updates in the department
- Identifying and answering frequently answered questions (see Appendix D)
- Encourage personalized communications from faculty, current students and alumni
- High touch is required: frequent contacts throughout the recruitment cycle (emails, phone calls & US mail)
- Offer application fee waivers to minority science program participants
- Provide information about multi-year funding packages
- Make available time for student to conduct independent research
- Explain departmental travel funding opportunities
- Invite for a campus visit, introduce to department and larger IU community
- Allow for a non-formal activity during the recruitment visit

Purpose of a campus visit:

Graduate schools should facilitate campus visits for as many prospective graduate students as possible and ensure that prospective minority students interact with the faculty, especially potential advisors, currently enrolled graduate students and other minority graduate students.<sup>1</sup>

## 6. Selection and Admissions



Is there a need to improve the selection and admissions process in your program/department?

Identify the admission criteria that determine the likelihood for success in your PhD program:

- Bachelors degree in a STEM field
- GPA and GRE scores
- Number / type of quantitative courses taken
- Student's goals (statement of purpose)
- Letters of Recommendation
- Research experience
- Teaching experience
- Number of peer-reviewed published articles
- Accomplishments following the BA/BS degree
- Potential for significant disciplinary contribution (what are these?)
- Amount of academic "distance traveled" - what students have done with resources at their disposal
- Applicant interview
- Other ...



- Codify your admissions criteria: What other measures can be included in the selection and admission decision-making formula that predict success in your graduate program?
- Create a "profile of success" from previous URM admits and graduates for your program
- Use cluster / cohort admission strategies like the professional programs, creating a mix of student with different interests and strengths. Move away from exclusive one-by-one decisions from a ranked list

## 7. Consider new approaches

Instead of this ...	Consider this ...
Waiting on a prospective student inquiry	Initiate an alliance, create connections with faculty at feeder institutions
Attending minority recruitment fair	Send faculty or graduate student to meet with students at a “targeted” university
Buying names of profiled GRE test taker	Connect with alumni and ask for references
Exclusively relying on institutional diversity-building funding	Secure larger, more focused NIH, NSF grants for summer research programs
	Host a promising young scientist in your laboratory for summer research project
Fill in the blank ...	



8. WebCASPAR ([webcaspar.nsf.gov](http://webcaspar.nsf.gov)) is a search engine your department can use to search for where domestic URM students receive their BAs from. The instructions to use it are provided below:

1. If you're registered, sign in. Signing in allows you to save your searches. NOTE: Never use browser "BACK" button.. data and choices will be lost.

#### CHOOSE DATA SOURCE

2. Check "IPEDS Completions Survey by Race" under "**National Center for Education Statistics (NCES) Data Sources**"
3. Click "Select Data Source(s)" button in middle of the page.
4. Make sure "Degrees/Awards Conferred by Race (NSF population of institutions)" is highlighted and click "Select" button.
5. Click "Modify Classification Variables" button at the bottom of the page or the tab with the same name at the top of the page.

#### SELECT CLASSIFICATION VARIABLES

6. Highlight and then "Select" for the following categories: (Year will already be present)
  - a. **Academic Institution (standardized)** - can select public, private or by name of institution
  - b. **Citizenship (standardized)**
  - c. **Race & Ethnicity (standardized)**
  - d. **Gender**
  - e. **Academic Discipline, Detailed (standardized)**
  - f. **Level of Degree or Other Award**

Other options:

**Institutional Control** – allows you to choose public versus private institutions

**State**

**Highest Degree (standardized)** – highest degree offered by institution

**Academic Discipline, 6-digit Classification of Instructional Program (CIP)** – you can also view disciplines by 2- or 4-digit CIP codes. These codes are NSF's buckets for disciplines. Allows you to be more specific in your choice.

#### MODIFY CLASSIFICATION VARIABLES

7. YEAR: click "Do Not Display Selected Values"
8. YEAR: click "Edit" button

9. YEAR: select “5 most recent years” or whatever you choose to look at.. and click “Add Value(s)” button. Selection should now appear in the right-hand window.
10. YEAR: Click “Save” – this will save your changes and take you back to the classification variables page.
11. ACADEMIC INSTITUTION:
  - a. Display: “Selected Values in Row”
  - b. Include Total?: “Yes”
  - c. Edit: No changes.
12. CITIZENSHIP:
  - a. Display: “Do Not Display Selected Values”
  - b. Include Total?: “No”
  - c. Edit: “U.S. Citizens and Permanent Residents”
13. RACE & ETHNICITY:
  - a. Display: “Selected Values in Column”
  - b. Include Total?: “Yes”
  - c. Edit: Can search for whatever group you’d like, but know that searching for all students of every race and ethnicity often makes the table too large to display. Consider doing several more targeted searches.
14. GENDER: (MUST BE LISTED AFTER ‘RACE & ETHNICITY’)
  - a. Display: “Selected Values in Column”
  - b. Include Total?: “Yes”
  - c. Edit: “All Values” is fine, no need to edit.
15. ACADEMIC DISCIPLINE:
  - a. Display: “Do Not Display Selected Values”
  - b. Include Total?: “No”
  - c. Edit: Select discipline(s) you are interested in.
16. LEVEL OF DEGREE:
  - a. Display: “Do Not Display Selected Values”
  - b. Include Total?: “No”
  - c. Edit: “Bachelor's-degrees”

## **VIEW TABLE**

17. Click “View Table” button at bottom of page or tab with same name at top of page. Wait for table to appear. This might take a few minutes.
18. Scroll down to the bottom of the table and in the first yellow box, “Output Destination,” check either “Microsoft Excel” or “CSV.” Both are viewable in Excel.
19. Click “Export” button and save the file to your computer.
20. If you registered and logged in, you can also click the “Save Table” button (just above “Output Destination”) and return to this table next time you use WebCaspar.



## “Getting You Into IU Model” (GU2IU)

**MISSION:** To increase the number of competitive underrepresented minorities that apply and are admitted into an Indiana University PhD degree program for the 2010 and 2011 entering cohort.

### GOALS AND OBJECTIVES:

1. Expand the University Graduate School’s successful STEM recruitment practices to all campus PhD programs through existing relationships of doctoral prep programs and strategic mining of national databases such WebCASPAR, McNair Scholars Program, CIC FreeApp Program, etc.
2. Assist PhD programs in reaching out to underrepresented populations
3. During IUB campus visit, participants become acquainted with IUB’s outstanding academic PhD programs, its student organizations, and mentoring and support structures, and the campus culture.

**DESCRIPTION:** GU2IU is a pre-application campus visit for underrepresented minority students, underwritten by the President’s Diversity Initiative and coordinated by The University Graduate School. Using the IU AGEF recruitment model, funded by the National Science Foundation, the University Graduate School identifies programs that prepare underrepresented students for doctoral studies. Prospective applicants are invited to apply to the pre-application, fully-funded, early fall campus visit.

**SERVICE:** As part of the application process, prospective applicants are also asked to identify three faculty members they wish to meet in their PhD programs and departments of interest. A customized and personalized agenda is created in collaboration with the prospective PhD program. Information about the application process, funding opportunities and the opportunity to meet with current underrepresented minority graduate students are included in the campus visit. During campus visits to IUB, departments will be able to encourage prospective students to apply to our programs while at the same time assessing the quality and suitability of prospective students.

**TARGET POPULATION:** (1) Underrepresented minority students with strong academic backgrounds are invited to participate. Of the 162 who applied to GU2IU 2009, 65% participated in a faculty-mentored research program, 60% have presented at a research conference; and 29% have held an internship. The average GPA of the 2009 applicants is 3.43. In total, we received 118 completed applications. (2) We received 192 nominations from 165 different faculty/nominators from 114 different universities across the country.

**COMPETITIVE POSITION:** Leveraging Indiana University’s history of supporting graduate studies for underrepresented minorities, and tapping into the Indiana University Graduate School successful recruitment infrastructure such as AGEF’s GU2IU and Emissaries for Graduate Student Diversity where current graduate students (not necessarily in the program of interest) are included in the recruitment process.

YIELD: Participant demographics of GU2IU consisted of 24 prospective students. Of these 24 participants 18 were female and 6 were male. These participants represent 14 different disciplines of study, including: Informatics (2), Counseling Psychology (2), Sociology (2), Linguistics, History (2), Chemistry (2), Biology (2), Anthropology (2), Business (2), Astronomy (2), Physics, Psyche and Brain Sciences, Applied Health and Science, and African American and African Diaspora Studies (2).

Of the 26 GU2IU participants 12 of them applied to a PhD program at IU. Of these 12 applicants 10 were female and 2 were male. Also 7 were African American, 2 were Hispanic, 2 were American Indian/Alaskan Native, and 1 was an Asian/Pacific Islander. These 12 also represent 9 different disciplines, including: Informatics (2), Counseling Psychology, Sociology, Linguistics, History, Chemistry, Biology, Anthropology, and African American and African Diaspora Studies.



## Emissaries for Graduate Student Diversity

The University Graduate School, in partnership with the Graduate and Professional Student Organization, established the Emissary for Graduate Student Diversity program in 2007-08. The goal of the Emissaries for Graduate Student Diversity program is to connect trained IUB graduate students to assist in the various stages of the graduate application and admission process. Each cohort of emissaries provides information and referrals on campus resources; in addition to building community and networking with prospective graduate students.

The success and effectiveness of the Emissary program has been a focus of research during the 2010 spring semester. The research conducted on the Emissary program enabled us to see what kind of questions the Emissaries were being asked, by tracking their email account, blog reach, and other activities. The data collected showed that the top 5 questions the Emissaries answered through their email account were focused on: how they like IU, their specific graduate program, graduate students and raising a family, funding opportunities, and housing options. It also allowed us to track the peak times for Emissary inquiries, with most of the activity concentrated in the months of October, November, January, and April.

Ten new graduate students have been selected to serve as the Emissaries for the 2010-11 school year, which were selected based on their personal achievements and commitment to diversifying Indiana University. With the new Emissaries beginning their duties, many of the outgoing Emissaries were very interested in staying engaged in the recruitment program. These alumni Emissary members are now helping to develop a new component of the Emissary program entitled the Emeritus status.

The goals of the currently developing Emeritus cohort are to tap into the talents of senior/former emissaries; further develop the emissary program; and encourage or support the exploration of the professoriate for emeritus participants. To be considered for the Emeritus program the applicant must have served at least 2 years as an Emissary. They will help with recruitment events, as well as assist in the promotion to increase the awareness of the Emissary program. The compensation for these members will include: Letter of reference to be used in post-doc and/or job searches, the cost of annual membership to an academic or professional organization, and the cost of registration for attending an AGEP-related future faculty or post-doc workshop or conference.

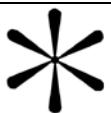


### **2010-2011 Emissaries for Graduate Student Diversity Cohort**

Overall, the Emissaries program has seen significant growth in the past three years. They have been an effective and usual resource to prospective students, as well as the graduate programs at Indiana University Bloomington. The expansion of the program to include the Emeritus members is evidence to the Emissary's for Graduate Student Diversity's success.

We encourage you to link your departmental and/or program website to the following resources for prospective IU students

- [Meet current IU graduate students - and ask a question](#)  
Current graduate students serve as Emissaries for Graduate Student Diversity by sharing their experiences at Indiana University. Emissary's blog about life in Bloomington and are available to answer prospective students' questions personally via e-mail.
- [Graduate Student Life at IU Blog](#)  
Insider information on what it's like to be a graduate student as they discuss their experiences in academia and in community life in Bloomington and at IU.
- [Walking Tours of the IUB Campus: for prospective graduate students by current graduate students](#)  
Seven walking tours of the IUB campus have been created for prospective graduate students by the graduate students serving as Emissaries for Graduate Student Diversity.



**RECRUITMENT SUMMARY:** Note gaps in your class demographics. Then, identify and locate recruitment pipelines (i.e. program alumni, CIC FreeApp, etc). Use WebCASPAR to identify schools that produce the needed demographic.

# Retention:

## Toolkit for faculty working to advance diversity in graduate education

Factors that keep URMs from persisting with science include academic and cultural isolation, motivation and performance vulnerability in the face of low expectations, peers who are not supportive of academic success, and discrimination, whether perceived or actual (10-15).

<http://www.sciencemag.org/cgi/content/full/311/5769/1870?ck=nck>

Our goal is to use the National Science Foundation's AGEP resources to help you develop new, pragmatic, innovative ways that work for enjoying higher graduation rates and numbers entering the professoriate.

Responding to the challenge at IUB:

Desired outcomes: more applicants, better matches, higher graduation rates and numbers entering the professoriate. The goal of AGEP is to help develop pragmatic, innovative practices that work.

Areas of designed interventions:

- Mentoring
- Financial support & structure
- Program environment
- Curricular processes & procedures
- Research experience
- Professional development

*Program Environment*

*Build and foster community – what does this mean? Extensive mentoring (academic, professional, cultural)*



The Meyerhoff Program is a recognized model for minority student success. Note the role of institutionalized and structured mentoring and support programs. (academic, professional, cultural).

Requests for similar types of programming have been made to AGEP.

*Higher graduation rates:*

Retention studies indicate that most students experience:

- Unsatisfactory academic progress
- Personal & family reasons
- Lost interest in graduate study
- 

a. know each one and their mentors (this is doable)

b. outlining student interventions for each standard that is to be met (this is the accountability of the faculty)

Funding is critical (type, timing and engagement with faculty & research teams); having a mentor (working intimately with a faculty member in conducting research, & how to get better at it); being enrolled full-time research productivity is influenced by getting connected with a research team & with others

Individual measures:

- presenting a paper
- publishing a chapter
- publishing a refereed article
- publishing a book

Resource: *Three Letters: PhD, Katherine Millett*

What really matters for graduate retention?

1. **Integration** into intellectual community creates effective scholars (question to ask: what does a robust intellectual community look like?)

2. **Mentoring** & advising both matter

3. **Information flows** & feedback

- a. intellectual identity
- b. what is a knowledge producer
- c. annual assessment

4. **Advance information** for student

- a. orientation
- b. peer mentors
- c. initial advising
- d. shared courses
- e. shared office spaces

5. Frequency of **communication** from:

- a. multiple mentors
- b. annual review
- c. safety nets

6. **Understanding** the difference between undergraduate & graduate experience

- a. clear expectations for and access to experiences
- b. career paths of alumni

*Programming*

- “Not a Retreat but a Forward”
- AGEP Mega Conference
- GLASS Professional Development Conference



## Sample Retention Plan Schedule:

### Spring/Summer Term

- Annual Departmental/Program Self Assessment
  - Review student and faculty retention history
  - Assess institutional support and plans to access external support
- Set goals for the academic year
- Assign Mentors, Advisors, Committees and tasks for upcoming academic year
- Plan Enriched Teaching and Research Activities
  - Retreats
  - Seminars
  - Social Activities
  - Professional Development Workshops
  - Internship/Field Research/Lab Rotations
  - Teaching Assistantships
- Graduate Student Support Plan
- Institutional Support Plan
- Plan formative evaluation to be integrated into activities and documented

Person(s) responsible for review and plans: \_\_\_\_\_  
 \_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

### Fall Term

- Set up and disseminate Calendar for monitoring student progress
- Conduct Faculty, Mentor and Student Meetings
  - Monitor student and junior faculty progress
  - Assist students and junior faculty with career planning
- Implement Teaching and Research Activities
- Maintain communication and collaboration with institutional support structures
- Maintain communication and collaboration with external support networks
  - Enlist all faculty and students to participate in enrichment activities
  - Enlist all faculty and students in outreach/recruitment/mentoring.

Person(s) responsible for review and plans: \_\_\_\_\_  
 \_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

Schedule meetings with the following organizations on campus to keep them informed about activities within your program and about your retention goals and progress

- Office of Graduate Recruitment and Diversity
- The Departments admitting your students
- Women Students' Office
- Student Career Services
- Graduate Studies Office
- Office of Minority Affairs
- Office for Campus Diversity
- Minority and women's student group chapters

Person(s) responsible for review and plans: \_\_\_\_\_  
\_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

Outreach before the holidays

- Collect contacts from faculty, staff and students and help faculty send individually tailored program information to their contacts about your program(s)
- Remind faculty and staff to make announcements in classes and events to students and others about funding and professional development opportunities

Person(s) responsible for review and plans: \_\_\_\_\_  
\_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

Update student database records includes information on student's career goals, research interests, and plans, funding support.

Person(s) responsible for review and plans: \_\_\_\_\_  
\_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

### Winter Term

Review progress, formative evaluation and students records from fall semester

- Look for additional fellowship funding from other sources which can be tapped for their students and faculty.

Review, adjust and continue to implement meeting, professional development and enrichment schedule

Person(s) responsible for review and plans: \_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

- Schedule an annual weekend retreat for current/past/potential IGERT trainees and faculty.

Person(s) responsible for review and plans: \_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_

- Review and improve communication plan, (website development, improve the website to be used as an instructional and networking tool. Make it user-friendly and people-oriented, and keep it up to date). Checklist to include on the website:

- FAQs about your program
- Photos and bios of the students and faculty in the program – help students picture themselves in your program
- Timely up to date information!
- A CONTACT NAME, email and number
- Useful links that work
- Links to collaborating institutions, research centers, and funding, enrichment and career development opportunities for students and junior faculty

Person(s) responsible for review and plans: \_\_\_\_\_

Target Date: \_\_\_\_\_

Date Accomplished: \_\_\_\_\_



**RETENTION SUMMARY:** Help URM students understand the difference between doing science and studying science. Early and regular communication with underrepresented students is recommended. Accessing and encouraging students to take advantage of external support efforts and networking groups such as NOBCChE, SACNAS and AGEP should be part of the graduate experience.

## Mentoring:

Mentoring in a research setting should incorporate “seasoned scientists or researchers imparting years of hard-earned knowledge to a PhD. Student. The mentor should provide wisdom and guidance to the student’s own research.” Mentoring within the AGEP grant program is an integral aspect for its success. Many of the AGEP students have their own mentor within their program, whom they have chosen based on compatibility in their specific research interests. Below are the various categories within mentoring and links to resources to add your program in successfully capitalizing on each of these areas.

Mentoring Information taken from *Mentoring Early Career Scientist Webinar*:

To view Webinar click here: [Mentoring Webinar](#).

When mentoring post-doc. Students the mentor needs to take a holistic view and look at the individual in terms of matching their success and happiness to their personal and professional goals. “Working with mentees can be a very rewarding experience because they are creative and foster an exciting atmosphere. It is personally rewarding to see students succeed,” said Dr. Ruth Pfeiffer (Senior Investigator for the National Cancer Institute).



### Resources for Mentors:

1. Recommended Books by Dr. Emil Thomas Chuck (Professor of Biology George Mason University)-
  - a. Donna J. Dean “Getting the most out of your mentoring relationship”
    - i. <http://www.springerlink.com/content/3552nw78q8m77616/>
  - b. Thomas Landefeld “Mentoring & Diversity”
    - i. [http://books.google.com/books?id=\\_JEYyOSygTEC&lpg=PP1&ots=J9QYMCWcFY&dq=Thomas%20Landefeld%20mentoring%20and%20diversity&pg=PP1#v=onepage&q&f=false](http://books.google.com/books?id=_JEYyOSygTEC&lpg=PP1&ots=J9QYMCWcFY&dq=Thomas%20Landefeld%20mentoring%20and%20diversity&pg=PP1#v=onepage&q&f=false)
2. Collaboration and Peer Mentoring
3. Past Mentors of your own
4. Science Careers Forum (online: <http://scforum.aaas.org/>)
5. Go to meetings for other organizations outside one’s immediate environment (i.e. SACNAS) and make connections.

### Finding Your Mentor (Advice for your Mentee)-

1. Visit Post-Doc. Services on your campus or Career Center
2. Speak with Graduate Deans
3. Speak with your Program Advisor
4. Find someone who you respect or admire their career path and do not be afraid to approach them.
5. Take ownership of your career.
6. It is good to have 2 mentors, in order to gain diverse perspectives and reduce bias.

### Establishing Goals and Setting Expectations:

1. Discuss with your mentee what they want to get out of the experience in your first meeting with them.
2. Set clear objectives.

3. Attach goals to a specific time frame.
4. Discuss how to achieve the set goals.
5. Divide the process up into achievable and measurable goals and milestones.
6. Create a list of your mentee's accomplishments or potential successes and try to maximize them in terms of "moving their career forward."
7. Example of setting a realistic goal:
  - a. Mentee wants to end up with a job in academia.
    - i. Measurable milestone to reach over arching goal:
      1. Write 4 Publications this year.
8. Push the following skills with your STEM mentee, because they are not emphasized in STEM course work, but they are very important:
  - a. General Communication Skills
  - b. Public Speaking Skills- encourage mentee to speak at a public seminar
  - c. Networking Skills
  - d. Grant Writing Skills

#### The Mentoring Relationship:

1. It may be helpful to have a contract for your mentoring relationship, to increase productivity and establish a solid foundation.
2. You need to set boundaries at the beginning.
3. Stay positive, constructive, and career focused.
4. Relationship should be kept professional, do not get too personal.

#### Offering Constructive Feedback:

1. The danger of offering constructive feedback is that the mentee will disengage.
2. It is important to meet regularly so that the relationship is strong enough to handle constructive criticism and any problems can be dealt with early on.
3. Be prepared, collaboratively set expectations and topics for the meeting ahead of time.
4. Mentor's have a responsibility to be honest. Even if difficult conversations arise the Mentor needs to be honest with the Mentee and address issues head on.

#### Motivation and Encouragement:

1. Praise mentee in public for success and achievements.
2. Acknowledge mentee accomplishments, no matter how small.
3. Set achievable/measurable goals to help the mentee experience success.
4. Expect self-motivation at the post-doc. Level from your mentee. Make this expectation known. Help mentee realize that their career is their own responsibility.

#### Adverse Relations:

1. Recognize when a mentoring relationship is flawed. There is nothing wrong with getting a new mentor. Sometimes personal chemistry or goals do not match up. Both parties may benefit from change in an adverse situation.
2. Relationships change overtime and you may outgrown your mentoring relationship, recognize the need for and positive attributes of changing.
3. Meet negative and difficult issues head on.

#### Advise for Mentee Networking:

1. Provide them with awareness of opportunities.
2. Do not be afraid to approach people.
3. Conduct information interviews.
4. Create public professional profiles (i.e. LinkedIn.com), to help recruiters find you.
5. Think outside the box:
  - a. Join various organizations/groups.
  - b. Participate in panel experiences.
  - c. Volunteer
  - d. Offer to organize meetings and hold leadership positions.

Mentoring is a lifelong experience. It is important to stay in touch with all of your past mentors. A good rule of thumb is to at least contact them once a year and update them about your life. If you maintain your relationships, when you have a question or need assistance in the future they will be more willing to aid you, because you still have a fresh relationship.

#### *Getting Training as Faculty-Resources:*

- Faculty Mentor Training Project: <http://www.csun.edu/eop/htdocs/fmtp.pdf>
- Empowering Faculty: Mentoring Redirected and Renewed  
<http://www.ntlf.com/html/lib/bib/95-3dig.htm>
- Research Mentor Training: <http://www.researchmentortraining.org/gettingStarted.aspx>

#### *Knowing what to ask for (for Graduate Students)-Resources:*

- Mutual Mentoring Guide:  
[www.umass.edu/.../mentoring/Mutual%20Mentoring%20Guide%20Final%2011\\_20.pdf](http://www.umass.edu/.../mentoring/Mutual%20Mentoring%20Guide%20Final%2011_20.pdf) –
- 25 Power Questions to Ask Your Mentor: <http://ezinearticles.com/?25-Power-Questions-to-Ask-Your-Mentors&id=169121>

Minority Mentoring Program Proposal: (taken from Robinson, Christine “One Solution to Minority Graduate Students’ Discontent at Peabody College” April 1996)

#### Goals of the mentoring program-

1. To create a campus climate that encourages and values diversity.
2. To develop a caring and personalized support network for minority students.
3. To increase communication and interaction levels between faculty members and minority graduate students.
4. To provide the encouragement and guidance often necessary to complete the degree program.

#### Matching Mentors and Mentees:

“Mentorship interest forms will be sent to minority graduate students and faculty members. These forms elicit such information as:

1. Academic background
2. Personal interests

3. Research concerns
4. Perceived personal benefits of a mentoring program.  
“To promote compatibility between participants, and attempt will be made to match mentees and mentors based upon shared research interest.

### **Mentoring Online Resources:**

Online Toolkit for graduate mentors and advisors:

<http://www.grad.illinois.edu/faculty-staff/mentor-toolkit>

Toolkit for Postdoctoral Scholars and Faculty: (PDF saved in Guidebook Resources)

<http://www.gdnet.ucla.edu/gss/postdoc/pdtoolkit.pdf>

Preparing Research Faculty Useful Resources:

<http://www.preparing-faculty.org/PFFWeb.Resources.htm>

Core Competencies of a Successful Scientist:

[http://www.fhcrc.org/science/education/grad\\_postdoc/oscd/core\\_competencies.html](http://www.fhcrc.org/science/education/grad_postdoc/oscd/core_competencies.html)



**MENTORING SUMMARY:** URM's need to establish mentoring goals early on. See Mentoring Early Career Scientist Webinar - [Mentoring Webinar](#). Encourage students to seek multiple mentors.

# After the PhD, then what?



## How to get recognized for hire?

- Publish on a hot topic
- Work with a 'big name' advisor
- Come from a 'big name' school
- Execute a non-traditional post-doc

## For post-docs to be well-equipped for the professoriate, they must:

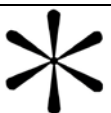
- Bridge the gap between grad student and researcher
- Identify NEW exciting research areas
- Publish
- Receive good career counseling
- Develop professional skills
- Undergo training and have experiences in management of human resources
- Participate in proposal writing opportunities

## Factors to being successful in science:

- Undergrad research experience
- PhD training
- Post-doc training
- Creating a national network of mentors

## AGEP Recommendations:

- Alliances should be strategic information for achieving strategic goals
- Have an external advisory committee
- Have faculty participation in the execution of the AGEp activities
- Effective communication pathways for students for consistent definitions and participants
- Students want teaching experiences with guidance and want to be fully informed about opportunities and realities of the academic career
- Have a fully developed and funded evaluation plan
- Alliances should broaden their recruitment reaches



**AFTER PhD SUMMARY:** After completing their PhD, students have many avenues they may embark on. Students need to be knowledgeable about all of the opportunities that are open to them and choose their individual path accordingly, whether that be in academia, industry, or another field.

## Funding:

To be a successful scientist one needs to develop their grant-writing skills. Successful proposals become funded projects, which allow for new discoveries and innovation. Encourage your students to not be afraid of pursuing their own funding. Receiving one's own funding allows you to pursue your specific research areas of interest. Resources that can be used to help find funding, grants, and other financial avenues are listed below.



A great resource to use when working on your grant proposal is the NSF's Grant Policy Manual which can be found here: [http://www.nsf.gov/pubs/2002/nsf02151/gpm02\\_151.pdf](http://www.nsf.gov/pubs/2002/nsf02151/gpm02_151.pdf).

IUB Recruitment Awards and other resources:

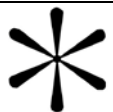
- <http://www.indiana.edu/~grdschl/fees-and-funding.php>
- <http://www.indiana.edu/~deanfac/download/download.html>

National Science Foundation Fellowships (NSF):

- [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=6201](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201)
- [http://www.nsf.gov/funding/education.jsp?fund\\_type=2](http://www.nsf.gov/funding/education.jsp?fund_type=2)
- NSF Graduate Research Fellowship Program: <http://www.nsfgrfp.org/>

National Geographic Society Early Explorers (\$2,000-\$5,000):

<http://www.nationalgeographic.com/field/grants-programs/young-explorers/>



**FUNDING SUMMARY:** External funding opportunities allow students to pursue their own research interests. Grant writing skills need to be exercised each academic year.

## Review of Summary Points:



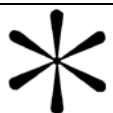
**RECRUITMENT:** Note gaps in your class demographics. Then, identify and locate recruitment pipelines (i.e. program alumni, CIC FreeApp, etc). Use WebCASPAR to identify schools that produce the needed demographic. (Original page-17)



**RETENTION:** Help URM students understand the different between doing science and studying science. Early and regular communication with underrepresented students is recommended. Accessing and encouraging students to take advantage of external support efforts and networking groups such as NOBCChE, SACNAS and AGEP should be part of the graduate experience. (Original page-23)



**MENTORING:** URM students need to establish mentoring goals early on. See Mentoring Early Career Scientist Webinar - [Mentoring Webinar](#). They can also have multiple mentors. (Original page-27)



**AFTER PhD, THEN:** After completing their PhD, students have many avenues they may embark on. Students need to be knowledgeable about all of the opportunities that are open to them and choose their individual path accordingly, whether that be in academia, industry, or another field. (Original page-28)



**FUNDING:** External funding opportunities allow students to pursue their own research interests. Grant writing skills need to be exercised each academic year. (Original page-29)

## Additional Resources:

### Recruitment-

[IU Emissaries for Graduate Student Diversity](#)

[IU Midwest Crossroads AGEP Website](#)

[IU-The University Graduate School Website](#)

### Retention-

[Toolkit for Postdoctoral Scholars and Faculty Members](#)

[National Science Foundation-Information for Graduate Students](#)

### Mentoring-

[Mentoring Webinar](#)

[Core Competencies of a Successful Scientist](#)

### After PhD, Then-

[Preparing Future Faculty-Useful Resources](#)

### Funding-

[IU Funding-Downloadable Forms & Applications](#)

[National Science Foundation 2002 Grant Policy Manual](#)

[IU-How to Finance Graduate School](#)

[National Science Foundation-Graduate Research Fellowship Program](#)

[National Geographic-Young Explorers Grants](#)