



# IU STARS

Science, Technology, and Research Scholars

## Student Handbook

Academic Year 2015-2016



# Indiana University

Science, Technology, and Research (STARS) Program



The IU Science, Technology, and Research Scholars (STARS) program was created in 1997 by Dr. Marc Muskavitch, with the primary mission to enrich the academic careers of outstanding undergraduate science majors on the Indiana University Bloomington campus -- young scholars who believe that the pursuit of research is an essential part of their education.

Undergraduate IU STARS work in collaboration with faculty mentors, and members of their research groups, to conduct basic research in a variety of fields in the College of Arts and Sciences. The involvement of Scholars in this work enriches their own training in the sciences and contributes to the progress of the research programs of IU faculty. We are very grateful to the faculty mentors at Indiana University who guide and train these scholars.

***“Success is not final,  
failure is not fatal: it is the  
courage to continue  
that counts.”  
—Winston Churchill***

## At-A-Glance

IU STARS has had tremendous students come through the program, resulting in the following honors awarded:

- 13 Goldwater Scholars
- 12 Beckman Scholars
- 6 Gill Scholars
- 2 Rhodes Scholars
- 2 Truman Scholars
- 2 Churchill Scholars
- 2 McNair Scholars
- 2 Elvis J. Stahr Senior Award
- 1 Herman B Wells Senior Award
- 1 Kate Hevner Mueller Senior Award
- 1 Provost’s Award for Undergraduate Research & Creativity

While not a requirement, several scholars have published prior to graduation, with nearly 50 known publications in peer-reviewed journals thus far.

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<http://college.indiana.edu/science/undergradscienceresearch/stars.shtml>

You are among a select group of science majors who will have the opportunity to conduct research while earning a bachelor's degree at Indiana University. This opportunity has the potential to become a springboard for your successful career in the sciences.

It is our hope that every scholar in the IU STARS Program will succeed academically, be involved in dynamic and productive research, and have active interaction with a research mentor while he or she is enrolled at IU. You will derive benefit from the program proportional to the amount of time and effort you devote to it. If scholars want pointers on study skills, help with time scheduling, assistance arranging for a new mentor, or simply want to air concerns or ask questions, please feel free to contact the STARS administrators any time.

## STARS PROGRAM ADMINISTRATORS

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## PROGRAM GUIDELINES

**Research:** Hands-on research is at the core of the STARS experience; therefore, STARS scholars are required to be actively involved in research for approximately **10 hours per week throughout each semester**. Each scholar should consult with her or his faculty mentor to establish precise research expectations and a schedule each semester.

**Ethics and Integrity:** IU has detailed guidelines about student responsibilities and behavior. Each scholar is expected to follow the IU Code of Student Rights, Responsibilities and Conduct. There are additional expectations for scholars who are working in research labs. **All first-year STARS scholars must complete an on-line ethics course by September 16, 2015** that will provide research ethics education. Information and training links are available on the STARS website or in the appendix section of this handbook. Mentors will address any additional training needed (i.e. animal experimentation, human subjects, radiation, etc.), although you should inquire yourself.

**Grades and Coursework:** Scholars must maintain an overall IU GPA of at least 3.500 to remain in the program. Scholars must also maintain full-time enrollment during each semester of the academic year. If a scholar must withdraw from school temporarily, he or she should notify the mentor and the Associate Director as soon as possible in order to remain in good standing with the program.

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**Lab Progress Reports:** All scholars are required to submit an on-line report describing his/her current research and laboratory activities each semester. The report is submitted to the scholar's mentor for comments and approval as well as copied to the Associate Director. Semester reports are due on **December** and **April** (reference calendar in appendix for exact deadlines). The link to the semester report is located on the STARS website. Note that your poster at the spring symposium can be considered your spring progress report.

**Program Activities:** All scholars are required to participate in the annual STARS Research Symposium. Students in their second year and above are required to present. Freshmen are required to attend the Symposium, and while not required to present, are encouraged to do so. Attendance at career and research seminars is strongly encouraged. Student-led activities may also be planned.

**Fall Reception:** This event gives participants an opportunity to get to know other STARS scholars, spend time with STARS mentors, learn more about the year's plans, and ask questions. STARS scholars who were awarded summer research scholarships are required to display posters of their summer research. All scholars are encouraged to come to the reception; however, incoming scholars and summer scholarship recipients are required to attend.

**Spring Research Symposium:** All second year and above scholars are required to submit an abstract and present a research poster. First-year scholars are not required to submit an abstract or poster, but they are encouraged to do so. **Attendance at the symposium is required of all scholars.**

Scholars should contact their mentor for guidance in preparing the abstract and poster. A STARS Scholars Advisory Board will review the abstracts and select three scholars to present platform talks at the symposium. During the symposium, scholars will have the opportunity to discuss their research with mentors and students. A faculty panel will select the top three posters. First place will receive the Dr. Marc and Karen Muskavitch Excellence Award. Two runners-up will receive *College of Arts and Sciences* Excellence Awards.

**Meeting with Program Director:** All first year scholars should make an appointment to meet with the Associate Director during the fall semester.

**Academic Credit for STARS Research:** Scholars may receive academic credit for their undergraduate research. Scholars should discuss this with their mentors and then contact their academic advising office to complete the process. *Note: a few IU academic departments do not offer a for-credit independent research course.*

**STARS Summer Research Scholarships:** Scholars who plan to continue their research during the summer may apply for scholarships (variable up to \$3000) awarded by the STARS program. There are a limited number of scholarships available on a competitive basis. Applications are available on the STARS website in early spring, and **due late March**. Applications will require

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scholars to write a research proposal and obtain your faculty mentor's approval before being fully considered.

### **STARS Summer Research Scholarships Eligibility Requirements:**

- Be a current STARS scholar in good academic standing and in good standing in the lab
- Plan to perform full-time research (40 hours per week) on campus in their mentor's lab for ten weeks (Partial scholarship may be available)
- Enroll full time as an undergraduate for the following fall semester. (Scholars going abroad the following fall semester are eligible, but must submit their poster for the fall reception before leaving.)
- Have no other sources of research support during the summer
- Commit to present the supported summer research in poster form at the STARS Welcome Reception in the fall

**Travel Awards:** Competitive travel scholarships up to \$500 are available yearly for scholars. We encourage student participation in research presentations at professional meetings. Please contact the Associate Director for information on how to apply for these scholarships.

**Evaluation of Scholars' Work and Progress:** Each semester the STARS staff compiles summary information on the academic progress and the extent of lab participation for each STARS scholar. This is to ensure that each scholar is getting the most possible out of the program and to evaluate the success of the program. The goal of STARS is for every scholar to succeed with their academics and with their research.

We are implementing a new **Incentive Points** system to help us track the performance of our scholars. Scholars should strive to accrue as many points per academic year as permits with your course schedule and other academic activities. Some events are STARS-specific, while others are related to research and campus/community outreach. Be sure to alert us to events you participated in outside of STARS so we can award points to you. Keep in mind the more points you earn the more competitive you will be for STARS scholarships as well as nominations/recommendations for campus/other scholarships, awards, and honors. More information about the incentive points system can be found in the appendices.

**Changing Labs:** Scholar-mentor associations can change for a variety of reasons. The mentor could leave IU. The scholar's interests could change. An incompatibility might arise between a scholar and mentor or some other member of the mentor's laboratory. Scholars wishing to change mentors should meet with the Director or the Associate Director to discuss the situation and possible transfer to another lab. During this transition, scholars **must** remain active in research during the entire semester (i.e., scholars may not "take a semester off" to look for a new mentor). Therefore, a timely arrangement of a new scholar-mentor association is important.

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**Taking a Semester Off from Research:** There are a number of reasons why a student may wish to take time off from research. They might wish to take a semester abroad, prepare for the MCATs, or simply recover from burn-out. One must note, however, that the STARS Program is simply a mechanism for providing research opportunities for undergraduates, and the success of the program is based solely upon the research accomplishments of the Scholars. Thus, the Program does not take lightly a leave from research activity for any reason. The Program nonetheless recognizes that reasonable arguments in support of a leave might be made.

One semester of leave may be granted only if the research mentor is in agreement and it is clear that the Scholar will resume his/her work in the Sponsor's laboratory at the conclusion of the semester of leave. Thus, it is the research mentor who will make the determination about the appropriateness of any leave. When a leave has been granted by the mentor, the student **must** notify the Associate Director.

**Probation and Dismissal:** If a scholar's IU GPA falls below a 3.500 or if a scholar is not participating in laboratory research in collaboration with a mentor or a mentor is dissatisfied with a scholar's performance, the scholar will be placed on probation. Scholars will receive notice from the director and/or program manager and will have until the end of that current semester to remedy the areas in which they are remiss.

Scholars on probation should meet with their mentor and/or the Associate Director and the Director for guidance in remedying the situation. Once the areas have been remedied, the scholar will return to full good standing in the program. If the situation persists, the scholar may be dismissed from the program.

**Dropping STARS:** If you are contemplating leaving the program, you should contact the STARS Associate Director and/or the Director to discuss your options. Scholars who decide to leave STARS must notify their mentor and program manager in writing and must return all lab materials, keys and books to the lab mentor in a timely manner.

**Fifth-Year Scholars:** There are often sound reasons for taking a fifth year as an undergraduate. With mentor approval, fifth-year scholars are invited to remain in the STARS program

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## APPENDIX - 1

### 2014-15 DATES TO REMEMBER

#### Fall Semester

- ❖ **August 30, 2015; 4:00 – 5:30 PM; Jordan Hall Atrium and JH A100**
  - Fall Reception and Orientation for new and returning STARS scholars. Summer scholarship recipients present research posters.
  
- ❖ **September 16, 2015**
  - Deadline for ethics on-line training for first-year STARS scholars only. (See Appendix-2)
  
- ❖ **Mid-Fall**
  - Research/Career Talk and/or Professional Development Events
  
- ❖ **November 29, 2015 (Sunday at 11:55PM)**
  - Symposium Abstracts due
  
- ❖ **December, 2015**
  - Platform Talk Selection Committee reviews and selects symposium speakers
  
- ❖ **December 4, 2015**
  - Fall semester online report due.
  
- ❖ Note: All first-year scholars should make an appointment to meet with the Associate Director during the fall semester.

#### Spring Semester

- ❖ **February 13, 2016 (Tentative)**
  - STARS Research Symposium
  
- ❖ **March 30, 2016 (Wednesday) by 5:00 PM**
  - Applications due for summer research scholarships
  
- ❖ **Mid/Late Spring**
  - Research/Career Talk and/or Professional Development Events
  
- ❖ **April 24, 2016 (time and place TBD)**
  - Senior Recognition and Reception
  
- ❖ **April 24, 2016**
  - Spring semester online report due if you did not submit an abstract and present a poster at the symposium.

## APPENDIX - 2

### STARS ETHICS TRAINING INSTRUCTIONS

- Using a network computer on the IU Bloomington campus, please go to [http://researchadmin.iu.edu/EO/eo\\_citi.html](http://researchadmin.iu.edu/EO/eo_citi.html)
- Scroll down to the bottom of the web page and click “Yes”
- Login with your username and password (same one used for email, OnCourse, OneStart, etc.)
- Select “Add a course or update learner groups” under *Indiana University – Bloomington Courses*
- Add curriculum by answering a series of questions:
  - Question 1: select “No Human Research course needed” (unless required by your lab mentor)
  - Question 2: select “No”
  - Question 3: select “No”
  - Question 4: select the best option based on your area of research
    - Biomedical = biology, biochemistry, chemistry, neuroscience, medical sciences
    - Social and Behavioral = social psychology, anthropology, speech & hearing
    - Physical Science = physics, mathematics, geology, geography
  - Question 5: select items only if conducting studies with lab animals and required by your lab mentor
  - Question 6: select “Not at this time”
  - Question 7: select “Not at this time”
  - Question 8: select “No”
  - Question 9: select “No”
- Press “Submit” button
- You will then return to the main menu
- First, select “Complete the Integrity Assurance Statement before beginning the course”, and follow instructions
- Second, click on the link with the name of your course and complete the required modules
- You are not required to complete the optional modules, but are encouraged to do so
- Once all required modules are complete, send me notification/proof (e.g., printing out the page that lists your required modules as complete and current score % at the top)

If you have any questions about the system, feel free to contact someone at Research Ethics, Education & Policy (REEP) at [reep@iu.edu](mailto:reep@iu.edu) or (812) 855-0656

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## APPENDIX - 3

### INCENTIVE POINTS

To make the most out of the IU STARS opportunity, we encourage you to get involved and take advantage of all the campus and community has to offer. The more you are engaged, the more competitive you will be when applying for scholarships, internships, graduate school, and careers in science or medicine. STARS scholars are among the best and brightest students and are often nominated by the STARS Program faculty and administrators for various opportunities and competitive scholarships, not only for STARS, but also for campus/nation/other scholarships, awards, and honors. To help us track of all the wonderful things our scholars are doing we have implemented a point system. All STARS students should strive to accrue as many points per academic year as permits with your course schedule and other academic activities. . Once you complete the engagement, you should send an email to the Associate Director stating the title of the activity, what was learned from your involvement, and evidence of your engagement. Evidence could consist of a picture of you doing the activity; mention of your participation in a handout, conference program, or article; or a statement of service signed by the activity director. If you have questions, please contact the Associate Director, Teddie, at (812) 856-0801 or [trphilli@indiana.edu](mailto:trphilli@indiana.edu).

<b>STARS Spring Research Symposium (required attendance)</b>	<b>Points Earned</b>
In attendance as a Poster Presenter	30
In attendance as an observer	15
Absent but submitted abstract	15
Bonus points: Speaker	10
Bonus points: Abstract winners	5

<b>STARS Program Activities (highly recommended)</b>	<b>Points Earned</b>
STARS Orientation and Reception (fall)	15
STARS Research Speaker Series	10 per talk
STARS Professional Development Events	10 per event
STARS Spring Senior Recognition and Reception	10

<b>Other Research Activities</b>	<b>Points Earned</b>
Giving a research presentation or presenting a poster in front of an audience other than your own lab (e.g., research conferences on campus or at a regional, state, or national conference)	10 per presentation
Attending a regional, state or national conference	10 per conference
Attending campus research symposiums	5 per event
Published article in peer-reviewed journal	5-10 per article

<b>Service Activities</b>	<b>Points Earned</b>
Serving in a capacity as peer mentor for or general service to	5-10 depending on

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undergraduate research programs (e.g., IFLE, STARS)	length of activity
Volunteering for science outreach activities on campus (e.g., Fall Open Houses, Science Olympiad, Indiana Junior Academy of Science, etc.)	5-10 depending on length of activity
Volunteering for science outreach activities off campus (e.g., WonderLab, Elementary Science Nights, etc.)	5 per activity

### Frequently Asked Questions

***Do points carry over from year to year?***

Point totals will start over at the beginning of each academic year. However, we will track your level of participation throughout your time in the program. For instance, if a decision came down between equal candidates all things considered, we may choose someone who has consistently participated each year over someone who sporadically participated.

***Will the point system favor one class rank over another?***

No. While there are some opportunities where the group is evaluated against one another regardless of rank (e.g., summer and travel scholarships), points are valued to make it fairly equitable, and weighted based on the type of activities scholars should participate in at each rank throughout college. Additional aspects besides incentive points are factored in such decisions, including GPA, a scholar's proposed project/activity, and amount of resources available.

***What if I am traveling abroad during the spring semester and cannot present at the STARS Research Symposium?***

Because we encourage exploring all the opportunities afforded to IU students, you will still earn 50 points provided you submit an abstract for inclusion in the Symposium booklet.