

Barry M. Goldwater Scholarship

<http://www.act.org/goldwater/>

Deadline: national deadline: January 27, 2012; campus deadline: December 17, 2011

Fields of Study

Any area of science, engineering or mathematics. Open sophomores or juniors.

Description

The purpose of the Barry M. Goldwater Scholarship program is to “foster and encourage excellence in mathematics, the natural sciences, and engineering.” The Goldwater Foundation seeks scholars who are committed to a career in science, mathematics, or engineering, display intellectual intensity, and have the potential for significant future contribution in his or her chosen field.

The Goldwater Scholarship provides a grant toward the last year or last two years of undergraduate tuition and living expenses for students in science, mathematics, and engineering who are planning careers in research. WPI may nominate up to four candidates, who may be either juniors or sophomores at the time of nomination.

Criteria for Selection

- Strong candidates have had the opportunity to participate in research. In their materials, the nominees discuss their research experience and request that one of their recommendations be completed by the individual who supervised the work. The research experience should be significant and demonstrate that they are “making meaning from science.” The research might involve learning effective benchmark practices, but the candidate’s commitment to and passion for science and engineering are important.
- Students who may not have had opportunities for research will demonstrate intellectual curiosity in other ways, perhaps through independent investigation of a theory or issue related to their fields of interest.
- Many strong candidates have competed for and been awarded internships in research facilities or worked as lab assistants in local industry or at their postsecondary institutions. Other related types of employment are also helpful.
- Abilities and potential are also shown by a candidate's meeting significant responsibilities, involvement in mathematics/science/engineering student organizations, related employment, independent investigation and research, early participation in graduate

courses, or other accomplishments outside the classroom. Among recent scholars, 25-30% have published their research, and 50% have made professional presentations.

- Strong candidates will provide evidence that demonstrates their individuality.
- Nearly all Goldwater Scholars intend to pursue doctoral degrees; this is now almost a prerequisite. Students who plan a career in secondary math/science education are not considered strong candidates for the Goldwater Scholarship.
- Nearly all Goldwater Scholars have a 4.0 GPA, or very close to it. According to the Foundation, the mean GPA among Scholars is 3.95 with a very small standard deviation.
- Strong letters of recommendation are essential and critical. At least one letter of recommendation must come from a faculty member who has supervised the student's research.
- Candidates must prepare a carefully thought out, well-researched response to the essay question. The essay topic should directly relate to the student's area of academic study and should represent an area where the student's knowledge is notable. Many students cite actual research experience in which they are or have been involved. In addition to actual experiences, evidence of additional investigation into the study of the topic must be demonstrated.

Application Procedure

The application materials include official forms with essays, college and high school transcripts, and three letters of recommendation. Several short essay questions ask about a student's research experiences, personal interests, as well as academic and other accomplishments. In addition, the application requires a two page essay on a research topic of interest to the student.

WPI will select up to four students as nominees for the Goldwater Scholarship through an on-campus competition. Interested sophomores or juniors should speak to the Goldwater Faculty Representative, Prof. Hansen. To be considered for nomination, please submit a preliminary application that includes the following:

1. Complete the Goldwater application, available from the [Goldwater website](#). Print the application form to PDF to submit for the WPI nomination process.
2. Outline of a 1-2 page essay on a significant research problem in your field of study that is of particular interest to you.
3. Unofficial WPI transcript. An official transcript will be required of nominees as well as transcripts from any other colleges/universities attended.
4. Names and email addresses of **three** faculty members or research supervisors who have agreed to write recommendation letters if you should be nominated. Do not put the names of these recommenders into the Goldwater online application at this preliminary stage.

For the 2011-12 competition, these materials should be submitted to Prof. Peter Hansen, Dept. of Humanities and Arts, (phansen@wpi.edu) by December 17, 2011. Nominees should expect to revise their applications and obtain the letters of recommendation before the application is submitted to the national competition near the end of January.

In the national competition, applications are first screened in groups based on the applicant's state of residence. A pair of reviewers who are not from that state read every application and attempt to identify two potential Scholars as well as potential at large recipients. After this initial review, all of the recommended applications are read by another pair of reviewers in order to identify approximately 300 Goldwater Scholars and 25-30 Honorable Mention recipients. The Foundation considers Honorable Mention equivalent in stature to being named a Scholar but it does not come with scholarship funds. Typically, 1,200 well-qualified students compete for these awards, which are announced in late March or early April.

Additional Information

The eligible fields are diverse, and include all areas of science, mathematics and engineering. The Goldwater website provides examples of possible undergraduate majors and career objectives. They receive an inordinate number of applications in environmental science and from students with plans to do MD/Ph.D. programs, very few of whom win scholarships. The competition does not receive as many applications in pure Physics, Chemistry, or Mathematics. Applications from "practitioners" are not competitive. The competition tends to favor an interest in pure research.

A meaningful research experience is crucial. Juniors are expected to have two research experiences, typically one off-campus and one on-campus. Or they might have two research experiences at the same institution or one major research experience.

Sophomores are at a disadvantage. Sophomores may be nominated, but few of the awards go to sophomores. For sophomores, at least one substantial research experience is necessary, and they need to have been actively involved in this research. However, significant previous experiences in high school are helpful. If a student had been in the Intel competition, science fairs, and so forth, they may be able to provide evidence of a trajectory that is taking them toward a distinguished career in research.

Goldwater Scholars have very impressive academic qualifications that have garnered the attention of prestigious post-graduate fellowship programs. Recent Goldwater Scholars have been awarded 77 Rhodes Scholarships (including 4 for 2011), 108 Marshall Awards, 98 Churchill Scholarships and numerous other distinguished fellowships.

The Goldwater website posts the official application materials: <http://www.act.org/goldwater/>

Recent WPI Goldwater Scholars:

2011

Sarah Mattessich '12, Biomedical Engineering, Woodbridge, Connecticut

2010

Andrew Black '11, Chemical Engineering, Bridgewater, Massachusetts

Andrew Capulli '11, Biomedical Engineering, Hampstead, New Hampshire

2008

Daniel J. Smaltz '09, Chemistry, Paxton, Massachusetts

Douglas K. Tischer '09, Biochemistry, San Anselmo, California

Shawn P. Carey '09, Biomedical Engineering, Southington, Connecticut, Honorable Mention

2007

Lynn A. Worobey '08, Biomedical Engineering, Westerly, Rhode Island

Charles A. Gammal III '08, Electrical and Computer Engineering and Mechanical Engineering,
Westborough, Massachusetts, Honorable Mention

2006

Sanjayan Manivannan '07, Mechanical Engineering and Mathematics, North Smithfield, Rhode
Island

2005

Molly L. Conforte '06, Biomedical Engineering, Lovell, Maine

2004

Matthew J. Black '05, Chemical Engineering, Bridgewater, Massachusetts

Helen A. Hanson '06, Engineering-Physics, Middletown, Connecticut

David J. LeRay '05, Mechanical Engineering and Mathematics, Everett, Massachusetts

2003

Ann C. Skulas '05, Chemistry, Vine Grove, Kentucky

Ravi Srinivasan '04, Mathematics, Worcester, Massachusetts

2002

Jack N. Waddell '03, Physics, Pace, Florida

2001

Yakov Kronrod '02, Mathematics and Computer Science, Malvern, Pennsylvania

1994

Erik Alldredge '95, Physics, Carson City, Nevada