Hits and Misses in Goldwater Applications

Providing Some Guidance on Ways to Respond to Various Sections of the Application

Babs Wise, babswise@gmail.com
Kerry Karukstis, karukstis@g.hmc.edu

These slides will be posted on the Goldwater web site under the "Open House Presentations" tab in the lower left corner of the opening page.

Important Roles for the CR

- Choose students you/your committee believe fit the criteria of the Goldwater Scholarship
- Advise the student on application content
- If you are not a scientist, recruit a science person to review the research essay and the career path proposed
- Help the student learn to manage the recommendation process
- Look for the hits and misses in the application—help the student achieve more hits than misses through
  - Editing
  - Getting help from recommenders
  - Addressing in your CR statement

Advice to the student approaching the application

- Think of the application as a story…
  - Who are you?
  - Why is a research career a slam dunk?
  - How will you get there?

- Recommenders should add credence to your story.
  - Include your research mentor (who can also help you polish your research essay)
  - A teacher in a science oriented/preferably research class (not your French instructor)
  - Someone from a summer research experience, another teacher, a former research mentor….

Just a reminder as we look at some "hits" and "misses" in various sections of the application:

- Reviewers evaluate applications **holistically**, giving balanced consideration to all elements of the application.

- A strong response in a particular part of the application (a "***hit***") does not guarantee a Goldwater scholarship.

- A weak response in a particular section of the application (a "***miss***") does not preclude receiving a Goldwater scholarship.

The sections of the application that we will discuss include:

- **The Opening Statement on Career Aspirations**
- **The Detailed Career Narrative**
- **The Research Project Summary (not the Research Essay)**
- **The Recognitions / Activities / Accomplishments Section**
- **The Academic Record (Current and Future Courses) and Transcript Sections**

Opening Statements on Career Aspirations

- State succinctly but as clearly/precisely as possible
- Remember that the career statement is the first section read by reviewers

HITS

Student Narrative Statements

- **Degree**
- **Research area**
- **Career location**

In one or two sentences, describe your career goals and professional aspirations.*

Ph.D. in Immunology and M.D. with a specialty in Oncology. Research the immune evasion of cancer to develop and implement innovative treatments for various diseases and teach at the university level.

In one or two sentences, describe your career goals and professional aspirations.*

PhD in Marine Ecology. Conduct research in a marine conservation ecology context and work at the Smithsonian Environmental Research Center (SERC).

In one or two sentences, describe your career goals and professional aspirations.*

Ph.D. in Planetary Geoscience or Geophysics to conduct research and teach at University level. I am interested in using geophysical techniques to study behavior and composition of other planets.

In one or two sentences, describe your career goals and professional aspirations.*

Ph.D. in Chemistry. Conduct research on developing new reaction methodologies using bifunctional photocatalysts and teach at the university level.

MISS **Very generic opening career statement (and very confusing).**

Student Narrative Statements

In one or two sentences, describe your career goals and professional aspirations.*

Ph.D. in Astrobiology. Conduct research in Astrobiology, specifically in astrobiology. Teach at a university level.

The more detailed career statement doesn't provide more clarity.

I am currently majoring in physics as an undergraduate and conducting research in astrobiology with physics professor ▮▮▮▮▮▮▮▮▮▮ this experience has led me to pursue a career in astrophysics, specifically in astrobiology. My degree itself is providing the basis I need to pursue this career path; ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

MISS   Another generic opening career statement.

Student Narrative Statements

In one or two sentences, describe your career goals and professional aspirations.*

Ph.D. in Astronomy. Conduct research in Astronomy and Astrophysics and teach at the university level.

The more detailed career statement starts off in a repetitive manner but does include two words of further explanation (which could have been included in the opening statement.)

In the future, I aspire to be a professor of astronomy, teaching at the university level while maintaining my own research group. In this regard, I have fostered an educational program that will prepare me to address challenging questions in my chosen field of star formation by providing me thorough training in astrophysics and astronomical research.

In the more **detailed narrative statement**, applicants are asked to address the following:

> *What are your career goals and professional aspirations? Indicate which area(s) of mathematics, science or engineering you are considering pursuing in your research career and specify how your current academic program and your overall educational plans will assist you in achieving your career goals and professional aspirations.*

To address the latter point:
- Describe the connection between your major (and any minors) and your intended research field
- Indicate the COURSES both in and outside of your major that you will take to prepare for advanced study in your chosen discipline

HIT

Career Goal: Ph.D. in **Computer Science**. Conduct **research in Artificial intelligence/machine learning**, and teach at the university level

In the Detailed Career Narrative, the applicant mentions the following:

- Undergraduate studies in **Computer Science** provided a well-rounded knowledge of the discipline
- Also pursuing **minors in Philosophy and Psychology**

Indicates how these minors contribute to research preparation

- Study of philosophy has developed critical thinking skills, ability to ask relevant questions and structure logical arguments, allowed student to delve into the philosophical aspects of AI, explore ideas about the nature of intelligence and the feasibility of creating intelligent machines.
- Psychology has provided insights into how the human brain functions in real-world scenarios and enabled student to develop innovative approaches for training AI systems

HIT

Career Goal: Ph.D. in Applied Mathematics. Conduct research on the math describing the emergence of macroscopic structures from interactions of constituent elements in complex and chaotic systems.

In the Detailed Career Narrative, the applicant mentions the following:
- Majoring in **Mathematics and Physics**
- Courses taken in **analysis, non-linear dynamics, and modern algebra** that offer insight into the formalism which is fundamental to contemporary work in the modeling of complex systems.
- Courses taken in physics such as **quantum mechanics, electromagnetism, and thermal physics** are helping to develop a physical intuition which links abstract mathematics to real-world phenomena and generates insight into how solutions to problems may be discovered.

Research Project Summary

- Don't feel compelled to fill the table with 5 projects.

- Don't divide a project with a given research mentor into multiple short-term entries just to fill the list.

- Be sure that there is a **letter of reference from at least one of the research mentors in the project list** and particularly from the mentor of the project described in the research essay.

- If research participation has been limited (especially for transfer students, veterans, etc.), a brief explanation would be useful to the reviewer.

- Double-check dates and participation hours. Reviewers often notice odd data and might not spend the time to clarify the issues.

HITS

Research Projects and Skills / Research Essay

RESEARCH PROJECT SUMMARY:

Example #1

Proj #	Project Name	Start Date	End Date	Publica-tions	Presen-tations
1	Constraining Bulk Density ████████ ███████	08/2022	Present **01/2024**	2	2

RESEARCH PROJECT SUMMARY:

Example #2

Proj #	Project Name	Start Date	End Date	Publica-tions	Presen-tations
1	Disease Ecology Course-Based Research Experience (CRE)	01/2022	05/2022	0	0
2	███████████ REU Internship Program	06/2023	08/2023	0	2
3	ArcGIS Pro Course Project	08/2023	12/2023	0	0
4	Plant Ecology Course Research Project	09/2023	11/2023	0	0
5	Plant Ecology Independent Course Research Project	11/2023	12/2023	0	0

MISS

Don't double-count research activities by dividing the research project into smaller parts or stages

- Only 2 overall projects denoted by * and *
- 3 presentations, not 5
- No manuscripts

RESEARCH PROJECT SUMMARY:

Proj #	Project Name	Start Date	End Date	Publica-tions	Presen-tations
1	The Importance of Identifying Invalid Data in Psychological Assessment Research	01/2023	05/2023	0	1
2	The Impact of Invalid Responding on Item Endorsement Rates in a Forensic Inpatie	04/2023	Present	0	1
3	Examining the Overreporting Scales of the MMPI-2-RF at Detecting Feigning in a S	05/2023	Present	0	1
4	Manuscript –The Impact of Invalid Responding on Item Endorsement Rates in a Fore	08/2023	Present	0	1
5	Manuscript– Examining the Overreporting Scales of the MMPI-2-RF at Detecting Fei	11/2023	Present	0	1

Presentations #2 and #4 are the same.

Presentations #3 and #5 are the same.

No manuscript resulted from these activities!

MISS

Reviewer Observation: Projects #2 and #3 appear to be concurrent summer projects with involvement of 45 hrs/wk and 40 hrs/wk, respectively. Seems to be an unusually high workload.

RESEARCH PROJECT 2:   *Character Tables*

Starting Month/Year	Ending Month/Year	Ongoing? Yes/No
06/2023		Yes

Average Hours/Week Academic Year	Average Hours/Week Summer
2	45

RESEARCH PROJECT 3:   *Spectral Graph Theory*

Starting Month/Year	Ending Month/Year	Ongoing? Yes/No
06/2023		Yes

Average Hours/Week Academic Year	Average Hours/Week Summer
0.5	40

Further Examination by the Reviewer by Noting the Dates of Presentations:

- Date of presentation for Project #2 is listed as January 2023
- Project #2 likely started on 6/2022

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MISS While reading a particular application, a reviewer noted the following:

Observation #1:

- The applicant typically enrolled in 16-20 credit hours per quarter.
- In the winter 2023 quarter the student enrolled in only 9 credit hours.
- No explanation was provided.

Observation #2:

- The student listed two projects for the winter 2023 quarter. One involved 20 hrs/wk, the other 10 hrs/wk. The total time spent on research was unusually high.

Missed Opportunity:

- The student should have mentioned that his summer 2023 courses (and his advanced placement) afforded him the opportunity to take the lighter Fall 2023 course load to really engage in two research projects exceptionally aligned with his/her career goals.

MISS

Application Submitted by a Junior Transfer Student

RESEARCH PROJECT 1:

Starting Month/Year	Ending Month/Year	Ongoing? Yes/No
10/2023	12/2023	No

Average Hours/Week Academic Year	Average Hours/Week Summer
9	n/a

Situation: One course research project of 3 months involving 9 hours per week. No publications or presentations. No other projects reported.

Reviewer Observation #1: Faculty member who taught the course with the research project requirement did not submit a recommendation letter.

Reviewer Observation #2: Applicant is a transfer student, a reasonable situation to limit research participation.

Missed Opportunity: Applicant should have discussed the mitigating circumstances that limited research participation. The applicant should also provide information to convince the reviewer of the applicant's commitment to research. **Don't make the reviewer "read between the lines".**

Recognitions / Activities / Accomplishments Section

Gives the applicant an opportunity to showcase:

- Academic and campus leadership positions
- Significant academic recognitions
- Extracurricular activities that reflect a commitment to a research field
- Other talents and interests that define the individual

Items to mention include but are not limited to:
- Scholarships, honor societies, academic awards
- Positions such as tutoring, laboratory assistants, campus ambassadors, etc.
- Involvement in sports, music, and other university-wide activities
- Participation and leadership in STEM clubs, organizations, etc.

MISS — **Use of acronyms without explanation, particularly in the Awards, Honors, and Scholarships section of the application**

Student Entry	Definition Not Provided	How the Application is Strengthened by this Activity
CCEL Scholar	**Center for Community-Engaged Learning**	Reinforced the student's research interest
SLAC Community Service Award	**Student Leadership Award**	Demonstration of campus leadership
President of LEAF	**L_____ Environmental Awareness Foundation**	Reinforced the student's research interest

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HIT? **MISS?**

ACTIVITIES AND ACCOMPLISHMENTS (e.g. Clubs, Student Government, Music or Art Activities, Community Activities, Sports Activities, etc. May list up to 5):

Activity/Accomplishment	██████████████████████████████
Organization	██████████████████████████████
Scope of Activity	College/University
Role/Involvement	Led and helped mentor a team of fellow lab members on multiple steps of research projects which have enabled the dissemination of our findings at national conferences and inspired future research in the psychology sciences with a healthy lab culture.
Leadership Position	Research Project Lead
Length of Involvement	More than one academic year

Best to have the faculty research mentor discuss the student's leadership activities in his/her recommendation letter. Student could also expand on this information in the career narrative.

Academic Record (Current and Future Courses) and Transcript Sections

These sections should demonstrate that the applicant exhibits the **depth-range-breadth of knowledge expected of a researcher.** The earlier narrative statement should also convey this information.

The student's **academic performance** should suggest that the student has the **ability necessary to pursue a research career**.

HIT

Life Science major specializing in Genomics

- Broad range of biology courses
- Transcript & expanded course list indicate math, chemistry, physics, and computer science courses

COURSES:

For students with more FUTURE 'In major' and 'Outside major' courses than there are available slots (6/category), the students were asked to list the six most advanced courses they would be taking in each category, listing the courses that they believe are the most important to their research career goals.

In Major Current Course 1	Genetics (Undergraduate)
In Major Current Course 2	Undergraduate Research (Undergraduate)
In Major Current Course 3	Genome Dynamics (Undergraduate)
In Major Current Course 4	Physiological Psychology (elective) (Undergraduate)
In Major Current Course 5	Introductory Physics II (elective) (Undergraduate)
In Major Current Course 6	
In Major Future Course 1	Human Physiology (Undergraduate)
In Major Future Course 2	Human Anatomy (Undergraduate)
In Major Future Course 3	Quantitative Biology Laboratory (Undergraduate)
In Major Future Course 4	Functional Genomics (Undergraduate)
In Major Future Course 5	Microbiology (Undergraduate)
In Major Future Course 6	Design and Analysis of Biological Experiments (Undergraduate)
Outside of Major Course 1	Basic Statistics for Engineering and Science using R Programming (Undergraduate)
Outside of Major Course 2	Elementary Computer Programming (Undergraduate)
Outside of Major Course 3	
Outside of Major Course 4	
Outside of Major Course 5	
Outside of Major Course 6	

MISS

Student's Major: Psychology   Minor: Statistics
Area of Specialization: Quantitative

No explanation as to why Constitution History and American Ethnic Literature and Culture are part of the Psychology major

COURSES:

For students with more FUTURE 'In major' and 'Outside major' courses than there are available slots (6/category), the students were asked to list the six most advanced courses they would be taking in each category, listing the courses that they believe are the most important to their research career goals.

In Major	Current Course 1	Independent Research (Undergraduate)	**Provide course**
In Major	Current Course 2	Undergraduate Research III (Undergraduate)	**number and**
In Major	Current Course 3	Data Simulation and Analysis (Undergraduate)	**department**
In Major	Current Course 4	Constitution History (Undergraduate)	
In Major	Current Course 5	American Ethnic Literature and Culture (Undergraduate)	
In Major	Current Course 6		

One statistics course indicated on transcript; none in future course list

MISS

Missing: All courses and their respective grades from campus programs prior to transfer. This is especially important for STEM courses and courses in one's major. Transfer cumulative GPA < 3.0.

The overall GPA will need to be over 3.0 to be eligible for nomination to a Goldwater Scholarship.

Transfer Credits
Transfer Credit from ▮▮▮▮▮▮▮▮▮▮
Applied Toward Undergraduate Baccalaureate

		Attempted	GPA Units	Earned
Course Trans GPA:	3.000	Transfer Totals: 73.000	73.000	73.000

Transfer Credit from ▮▮▮▮▮▮▮▮▮▮
Applied Toward Undergraduate Baccalaureate

		Attempted	GPA Units	Earned
Course Trans GPA:	2.000	Transfer Totals: 6.000	6.000	6.000

Total Transfer Credits

		Attempted	GPA Units	Earned
Transfer Cum GPA:	2.924	Transfer Totals: 79.000	79.000	70.000

Beginning of Undergraduate Record

Fall 2022
Program: Undergraduate Baccalaureate
Plan:

Course

PSY	300
PSY	301
PSY	301L
PSY	310
PSY	310L
PSY	335

Clearly these are advanced courses in the first semester of a four-year program. Thus the transfer credit must include other psychology courses.

Before the CR Submits
[Note this requires a campus deadline well before the national one].

- Once again look for "Misses" or Holes
  - Low grades
  - Not enough research
  - Coursework doesn't support ambitions

- How can the CR reasonably address them?
  - Ask a recommender to speak specifically to the issue
  - Have the student re-write their optional essay
  - Include mention in the CR's statement