NASA ACADEMY

June 6 - August 13, 2004

MENTOR/HOST HANDBOOK

University Programs Office, Mail Code 603.1
NASA Goddard Space Flight Center
Greenbelt, MD 20771
http://academy.gsfc.nasa.gov/

2004 NASA ACADEMY AT THE
GODDARD SPACE FLIGHT CENTER

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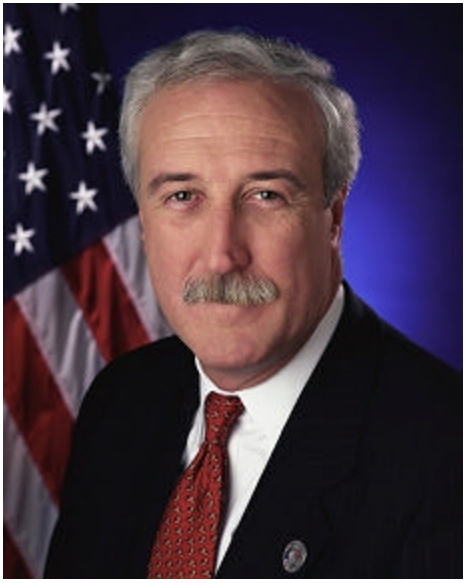

Sean O'Keefe, NASA Administrator

"This is NASA's vision for the future. Our mandate is:

- To improve life here,
- To extend life to there,
- To find life beyond

So, how do we get to that impressive picture of the future? Part of the answer is by executing NASA's mission:

- ***To understand and protect our home planet***
- ***To explore the Universe and search for life***
- ***To inspire the next generation of explorers … as only NASA can."***

(From the Address by the Honorable Sean O'Keefe, NASA Administrator, at the Maxwell School of Citizenship and Public Affairs, Syracuse University, New York, April 12, 2002)

PREFACE

This handbook contains information about the NASA Goddard Academy program, in particular its 2004 session. It attempts to summarize features that are common to successful mentoring relationships and suggests some basic mentoring/host guidelines to the Goddard scientists and engineers who have agreed to host and guide Academy participants in their resident part-time research work.

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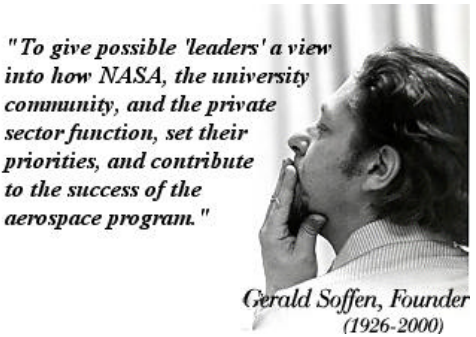
1 INTRODUCTION

1.1 BRIEF HISTORY



The NASA Academy was founded in 1993 (as the "NASA Space Academy") at the Goddard Space Flight Center by Gerald (Jerry) Soffen, former Mars Viking project scientist, architect of the NASA Astrobiology program, and first Director of the Goddard Office of University Programs. Jerry was an accomplished scientist and a dedicated educator. He took advantage of the unusual opportunities presented to him during his career and realized the importance of mentoring in the life of young professionals. In his vision, the Academy was intended to exceed in purpose and content all the other regular internships by familiarizing its participants with as many facets of the NASA agency as possible. With his dynamic personality and unique leadership, he opened many gateways and defined a new standard of excellence.

As the reputation of the Goddard Academy widened, new NASA Academy Programs were started at the Marshall Space Flight Center (1994), the Ames Research Center (1997), and the Dryden Flight Research Center (1997). In recent years, the Goddard and Ames Academies have functioned regularly.

The name of the program changed from "NASA Space Academy" to "NASA Academy" at specific NASA Centers. A continuous effort is being made to establish or re-establish Academies at various NASA Centers, with different profiles and focus areas.

Jerry Soffen died on November 22, 2000. We honor his legacy by continuing the Academy program that he loved so well.

In 2002, the NASA Academy celebrated ten years of successful activity. So far, 396 participants have graduated from the program.

In 1996, a German engineering student from the Imperial College in London, attended the Goddard Academy, as did an Italian student from La Sapienza in Rome in 1999 and French student in 2003. This year, as part of a two-year pilot international program, a second French student will

attend the Goddard Academy, and the International Space University (ISU) will contribute a staff member, as they have done since 2002.

1.2 PROGRAM DESCRIPTION

The NASA Academy is an intensive resident summer program of higher learning for college undergraduate and graduate students interested in pursuing professional and leadership careers in space-related fields.

The NASA Academy program is designed to present a comprehensive package of information and experiences about the organization of the NASA Agency, some of its most important current and planned science, engineering, education, and technology enterprises, as well as a number of non-technical areas of critical significance, such as management, budgeting, safety, personnel and career development, leadership, space law, international cooperation, etc. Besides attending lectures and workshops, the Research Associates will be involved in supervised research in GSFC laboratories, and will participate in visits to NASA Headquarters, other NASA Centers and facilities, the Applied Physics Laboratory, and a number of space-related academic laboratories and industries.

The NASA Academy at Goddard Space Flight Center is coordinated with the University of Maryland at College Park: College of Computer, Mathematical, and Physical Sciences; the A. James Clark School of Engineering, and the Department of Geography. As such, participants will receive Maryland academic credit. The Course Description from the Bulletin of the University of Maryland at College Park is:

> *Listing: CMPS/ENES/GEOG 496*
> *Grading: (S)atisfactory/(U)nsatisfactory*
> *Course title: NASA Academy*
> *Course description: A ten-week resident summer institute at the NASA Goddard Space Flight Center for juniors, seniors, and first and second year graduate students interested in pursuing professional and leadership careers in aerospace-related fields. The national scholarship program includes research in a Goddard laboratory and a combination of lectures and workshops on the mission, current activities, and management of NASA. Students interested in the Academy will find on-line information at http://www.nasa-academy.nasa.gov. Application should be made before January 31. Sponsorship by an affiliated State Space Consortium is recommended.*

1.3 OBJECTIVES

The objectives of the NASA Academy at GSFC are:

- To identify, to encourage, and to assist the future leaders of the aerospace program
- To provide an opportunity for participants to contribute to research in a world-class, space-related laboratory
- To provide a unique, intensive, and rigorous educational and training curriculum on NASA, its in-house science and technology projects, its collaboration with other National centers, industry, and academia, and its extensive technology-transfer programs
- To foster creativity, personal initiative, and leadership qualities, together with teamwork, appreciation for diversity, and professional ethics

2 ORGANIZATION AND MANAGEMENT

2.1 FINANCIAL SUPPORT

The Academy program is financially supported by the NASA GSFC University Programs Office and other NASA and non-NASA organizations. Academy participants are sponsored by the USA regional Space Grant Consortia and the French Space Agency. Special events have been funded by the NASA Academy Alumni Association and others.

2.2 ORGANIZATION

The NASA Goddard Academy is administered and operated within the GSFC University Programs Office.

Chief, University Programs - *Dr. Vigdor L. Teplitz*
Dr. Teplitz directs the University Programs Office and provides vision, inspiration, and leadership for the Academy and other programs offered by the Office. He joined Goddard at the beginning of 2003 on a three-year leave of absence from the Physics Department of Southern Methodist University. His previous experience includes academic appointments at MIT and Virginia Tech, as well as twelve years in the U.S. Arms Control and Disarmament Agency and two years in the White House Science Office. His research is in elementary particle theory, primarily at its border with astrophysics and cosmology.

Co-Director, University Programs - *Dr. Richard P. Fahey*
Dr. Fahey serves as Deputy Chief of the University Programs Office. Prior to Dr. Teplitz's arrival, he led the University Programs Office as Acting Director for several years both before and after Jerry Soffen's death. For the past three decades, he has been developing methods of presenting aspects of relativity and quantum theory to specialist and non-specialist audiences. During that time, he has taught courses in physics, astronomy, relativity and cosmology, aerospace engineering, and the philosophy of nature. Dr. Fahey currently conducts research in cosmology and gravitational wave detection at GSFC. He also holds the Naval Space Command Research Chair at the U.S. Naval Academy in Annapolis.

Program Co-Director - *Dr. Richard C. Henry*
Dr. Henry is Professor of Physics and Astronomy at The Johns Hopkins University in Baltimore, Maryland, and Director of the Maryland Space Grant Consortium. From 1976 to 1978, he was Deputy Director of the Astrophysics Division at the NASA Headquarters. He is an expert in the astrophysics of diffuse background radiation, particularly the diffuse background in the ultraviolet part of the electromagnetic spectrum. He has

served as Co-Director of the Academy since his appointment to that role by the late Jerry Soffen, founder of the Academy. He has been a regular lecturer at the Academy, presenting the foundations of quantum mechanics and other aspects of physics and astrophysics. Dr. Henry is a staunch supporter of the Academy program, its participants, and alumni.

Program Manager - *Mr. David Rosage*
Mr. Rosage has served NASA in various technical roles (ME) between 1980 and 2000, and as Program Manager of the Academy since 2000. Besides managing the NASA Academy Program for Goddard, he is responsible for short and long-term program improvements, expansion of the Academy to all NASA centers, enabling international participants, and increasing Academy alumni involvement and their awareness to the NASA community.

Dean of Academic Affairs - *Dr. Joseph Di Rienzi*
Joseph Di Rienzi is a Professor of Physics at the College of Notre Dame of Maryland and a Visiting Scientist at NASA/Goddard Space Flight Center's Laboratory of Astronomy and Solar Physics. Dr. Di Rienzi received his Ph.D. in Physics form the Polytechnic Institute of New York and his B.S. from Brooklyn Polytechnic Institute. His research interests are in theoretical physics, in particular atomic physics and the foundations of quantum mechanics. He works at Goddard with Dr. Richard Drachman on theoretical modeling of matter-antimatter reactions, and currently they are investigating the scattering of positronium with helium. Dr. Di Rienzi has had a long association with the NASA Academy. He served under Dr. Soffen as the original Dean in 1993 and 1994. He returned again as the Dean in 1999. Dr. Di Rienzi is a long time member of the Selection Committee, and he is really excited to be part of this year's Academic Staff.

Logistics Manager -*Mr. Miguel Román-Colón*
Miguel is an alumnus of the 2003 NASA Academy at the Goddard Space Flight Center. He just graduated with a Bachelor of Science degree in Electrical Engineering from the University of Puerto Rico at Mayagüez. He also holds a minor in Remote Sensing and Geographic Information Systems from the NASA Partnership for Spatial and Computational Research. This spring, Miguel led a senior research project with the National Oceanographic and Atmospheric Administration (NOAA) conducting satellite and in-situ observations to study the effects of Urban Heat Islands around the Puerto Rican Archipelago. In the fall, Miguel will begin graduate studies in Atmospheric, Oceanic and Space Sciences with further plans to attend the International Space University.

Operations Manager - *Ms. Carissa Tudryn*
Carissa is an alumna of the 1999 NASA Academy at the Goddard Space Flight Center. She attended The Catholic University of America in Washington DC and graduated with a Bachelor of Mechanical Engineering in 2000. In February 2004, she graduated with dual masters in Mechanical Engineering and Materials Science and Engineering as a Draper Laboratory Fellow from the Massachusetts Institute of Technology. She was actively involved with NASA Means Business and Mars Society educational outreach. She also has competed in marathons, triathlons, a ½ Ironman, and is happy to recruit early mo rning runners. In the fall, Carissa will begin working in the MEMS field at a NASA Center.

Program Support - *Ms. Kim Terrell*
Kim is serving the Goddard Academy as the International Space University (ISU) alumni staff person. She will graduate in July from the ISU Master of Space Studies program, Strasbourg, France. During her undergraduate studies she completed four summer internships at Goddard, one in which she helped to develop and run the predecessor to the Summer Internship Program (SIP). She earned her Bachelor of Science Computer Engineering degree from the Illinois Institute of Technology in 1998 and has since been serving as a Goddard contractor.

Program and IT Support - *Mr. Johnny Erickson*
Johnny has a B.S. in Computer Science and is the co-founder of a software design company. A pillar of the 2002 and 2003 Goddard Academy, Johnny is an enthusiastic and devoted supporter of the Academy and its Alumni.

In the operation of the NASA Academy, Miguel, Carissa, Kim, and Johnny will provide general assistance and logistics coordination. They will reside full time at the Academy House and will be available as facilitators in all the relevant program activities.

Academy Alumni Coordinator - *Ms. Laura Burns*
Ms. Burns is an alumna of the 1996 Academy at the Marshall Space Flight Center and an active member of the NAAA. She currently works at GSFC supporting the James Webb Space Telescope (JWST). As the Alumni Coordinator, Laura in forms, recruits, and coordinates alumni participation in all Academy extracurricular activities.

Special Assistant for Operations - *Mrs. Mary Floyd*
Mrs. Floyd provides support for housing, meals, transportation, and lodging on field trips, and distribution of the Academy participants' financial reimbursements.

Together with the designated Academy staff listed above, the Academy participants are expected to be actively involved in the affairs of the Academy, assuring its day-to-day success.

All the members of the University Programs Office will be pleased to grant any assistance and support needed.

3 THE 2004 NASA GODDARD ACADEMY PARTICIPANTS

3.1 ELIGIBILITY AND SELECTION CRITERIA

The 19 participants in the 2004 NASA Goddard Academy have been selected from a pool of 742 financially supported applicants representing 250 institutions, 41 states in the continental USA, Puerto Rico, and France. For the territorial USA, citizenship or permanent residence was required. Selection was based following criteria:

- academic rank (junior, senior, first, or second year graduate)
- academic performance (GPA higher than 3.0 or equivalent)
- demonstrated interest in the space program
- demonstrated leadership qualities
- research and/or project interest and experience
- maturity
- recommendation and references

Both the selection process and placement of the Academy participants in Goddard's research groups were assisted by recommendations from faculty, administrators, academic supervisors, and co-workers, and the applicants' self-profiling essays.

3.2 PLACEMENT IN GSFC LABORATORIES

The selected students have been matched with their hosts in GSFC Laboratories, in advance of their arrival at the Center and based on their mutual agreement and expressed mutual interest.

3.3 THE PARTICIPANTS (RESEARCH ASSOCIATES)

The 19 participants in the 2004 NASA Academy at Goddard are listed below. Their official title during the Academy session is "Research Associate (RA)."

Name	Support/ Space Grant	School	Major	Level
Danielle Adams	Massachusetts	Massachusetts Institute of Technology	Aeronautical/ Astronautical Engineering	Senior
Matthew Alberts	Michigan	Western Michigan University	Computer Engineering	Senior
Mark Arend	Minnesota	University of Minnesota-Twin Cities	Aerospace Engineering and Mechanics	Senior
Laurie Barge	Delaware	Villanova University	Astronomy and Astrophysics	Senior
Amanda Brown	Kentucky	Eastern Kentucky University	Environmental Health Science and Aviation Human Factors	Senior
Susana Cabello	Texas	Texas A & M University	Geology	Senior
Finale Doshi	Massachusetts	Massachusetts Institute of Technology	Aeronautical/Astronautical Engineering and Physics	Junior
Luke Dubord	California	Stanford	Aeronautical/Astronautical Engineering	Graduate
Julia Duval	France	Supaero University (ENSAE)	Aerospace Engineering	Graduate
Kathryn Gardner	Oklahoma	University of Oklahoma	Geology	Senior
Kathryn Goben	Missouri	University of Missouri - Rolla	Aerospace Engineering	Senior
Nicholas Hoff	Massachusetts	Massachusetts Institute of Technology	Aeronautical/Astronautical Engineering and Physics	Junior
Sarah Kavli	North Dakota	University of North Dakota	Mechanical Engineering	Junior
Christopher Malow	Virginia	University of Virginia	Chemical Engineering	Junior
Joleen Miller	Pennsylvania	Villanova University	Astronomy and Astrophysics	Senior
Brian Nord	Maryland	Johns Hopkins University	Physics	Senior
Loral O'Hara	Kansas	University of Kansas	Aerospace Engineering	Senior
Stephen Steiner III	Wisconsin	University of Wisconsin - Madison	Chemistry	Senior
Jacob Stich	Kansas	Pittsburg State University	Electronics Engineering Technology	Junior

3.4 DUTIES AND RESPONSIBILITIES

To provide an insight into the depth and intensity of the Goddard Academy program, this Handbook includes a list of the principal duties and responsibilities of the participants, as follows:

- Work with the assigned research supervisors on the individual laboratory or field research projects
- Work together on the "Group Project"
- Attend all Academy functions (lectures, workshops, review sessions, field trips)
- Prepare and deliver Poster and Final Oral Presentations related to the individual and group project work executed during the Academy session
- Create mini-educational Internet modules related to their research.
- Create weekly Internet reports of the Academy activities, as components of the 2004 Goddard Academy Web Site
- Create the 2004 Goddard Academy Yearbook
- Create original "Logo", "Patch", and "Mascot" for the 2004 NASA Goddard Academy
- Assist in the operation of the Academy, as needed.

4 THE "NASA EXPERIENCE" AND THE ROLE OF MENTORS, HOSTS, AND SUPERVISORS

The national and international reputation of the NASA Academy can be credited in part to the unique relationship between the participants and their mentors. In a relatively short time, by observing the mentors and their associates at work, mingling with the larger NASA scientific community, and lending a hand in the real work of NASA laboratories, the students acquire professional skills and work habits that shape in unpredictable ways their professional development into the future scientists and leaders of the space program.

Often Academy students' mentors are the best teachers they have ever had. Additionally, mentors cultivate valuable coaching, feedback, and leadership skills that can further their own personal and professional development. When viewed as an enabling process that facilitates career development and skills exchange, mentoring brings satisfaction and benefit to all parties involved. Professional mentor-mentee relationships may evolve into natural friendships and former students may become colleagues.

Effective mentoring need not always require large amounts of interaction time. Students augment their knowledge and experience in a variety of circumstances and with a variety of tools. Often, merely "shadowing" the experts is beneficial. Moreover, the ethical, scientific, and professional behavior of mentors and collaborators, as well as their attitude toward work, leave a strong impression on students.

The roles of the mentor may include coaching, teaching, motivating, counseling, guiding, opening doors, advising, sponsoring, and most importantly being a role model.

As a mentor of NASA Academy students, you can expect them to be competent, ambitious, eager to learn, loyal, hard working, and candid; have a positive attitude; and be able to listen, work as partners, and accept responsibilities.

5 BASIC MENTORSHIP GUIDELINES

- The mentors (Principal Investigators at GSFC or their designated substitutes) are invited to attend the First Day Orientation Meeting on Monday, June 7, at 12:00 Noon, in the Conference Room of Building 26, second floor, Room 205. Lunch is provided, during which the NASA Academy participants (Research Associates - RAs) are introduced to their respective mentors.

- After the meeting, the mentors escort the student RAs to the host laboratories, introduce them to the local team members and collaborators, discuss the work assigned to them for the entire length of their summer residence at GSFC, and orient them regarding the location of the buildings, rooms, installations and facilities related to the students' work.

- It is essential that the Research Associates are provided with:
  - dedicated desk space
  - access to telephone
  - access to computer
  - access to printer
  - access to Internet connection

- If shop work or data processing and use of specific software are involved in the assigned duties, it is important that the students are initiated in such operations, know the computer passwords, the location of necessary stockroom materials, and the technical personnel whom they may need to contact in order to execute and complete the assigned tasks, thus avoiding or minimizing any possible waste of time or idle presence in the labs.

- The GSFC mentors should be aware of the time schedule of the Academy RAs. You will be emailed a weekly schedule on every Monday throughout the summer. The Academy program is based on an intensive daily schedule, with more than three full days (Monday through Wednesday) of each week working in the lab or on their research project. Exceptions are the following days when the students are on field trips or participate in various other activities, as follows:
  - Wednesday, June 16: afternoon, departure to Langley Research Center
  - Tuesday, July 13: preparation and presentation of the NASA Academy Poster Session (1:00 p.m. to 4:00 p.m., Bldg.28 atrium);
  - Wednesday, July 28: whole day absence from the labs due to travel to the NASA Johnson Space Center.

- In order to make-up these missed lab days and continue to strive for 60% research, the RAs will be in lab, as follows:
  - Friday, July 2: Lab in the afternoon
  - Friday, July 9: Lab in the afternoon
  - Thursday, July 15: Lab in the morning
  - Friday, July 16: Lab in the afternoon

  The remaining time of the Academy session is occupied (outside the host laboratories) with the development of the "Group Project", attendance of colloquia, seminars, or workshops, meetings with experts and leaders in space organizations, and field trips or visits to local University laboratories and industries.

- Although most of the RAs possess basic skills and are self-learners, it is important that the mentors, or their designated substitutes, are available to guide them, answer their questions, or supervise their work, as needed. Equally important is that the students be involved in challenging and intense learning/training work.

- Every Tuesday, Wednesday, and Thursday evening, expert speakers visit the Academy students at their Residence House (Sigma Phi Epsilon Fraternity House at the University of Maryland, 8 Fraternity Row, College Park, MD 20740, Tel: 301-314-8278 (Tiffany Ayiku, House Manager) for dinner, followed by after-dinner presentations on various topics of interest, in a more informal setting. All GSFC mentors are cordially invited to participate in these evening gatherings. No Residence House Dinner Presentations are scheduled on Wednesday June 16, Thursday, June 17, Thursday, July 22, and Wednesday July 28, Thursday July 29, and Thursday, August 5, when the RAs are on travel.

- On Tuesday July 13, the RAs will organize a Poster Session in the atrium of Building 28. All the mentors, coworkers, visitors, and other interested persons are invited to attend and entertain scientific dialogs with the RA poster presenters. These conversations and the critique from scientists and experts are very valuable for the RAs. They allow RAs to demonstrate their communication skills and their knowledge and familiarity with the project. They also benefit the RAs by providing much needed feedback which can be used in the preparation of their Final Presentations (held at the conclusion of the Academy).

- The "Final Presentation and Graduation Ceremony" will take place on Friday, August 13, from 8:30 am to 2:30 pm in B26 Rm 205. Each Academy student will give a formal oral presentation of his/her

research work at GSFC, followed (after a catered luncheon) by the presentation of the "Group Project" and awards ceremony. All GSFC mentors/supervisors are cordially invited to attend and evaluate these presentations. The mentors will also be recognized for their supervision and mentoring work. The RA's will be able to give "dry-runs" on Wednesday, August 11 from 1-5pm in B26 Rm 205.

- The Academy students are instructed in advance of the general rules and constraints valid within the NASA-GSFC perimeters including: security, driving speeds, parking, restricted access to buildings and facilities, etc. No discipline incidents are expected to occur. However, the Academy staff appreciates the cooperation of the mentors in sharing the responsibility for the smooth and successful unfolding of the summer for the 2004 NASA Academy at GSFC.

6 CONDUCT, GRIEVANCES, AND GROUNDS FOR DISMISSAL

6.1 CODE OF CONDUCT

All Academy participants and staff shall conduct themselves in a manner that is honorable and respectful toward each other and the institutions they interact with, at all times, and in all places and circumstances in which the NASA Academy activities are conducted.

Any form of harassment or discrimination against any of the Academy community, its partners, hosts, or other interns is strictly prohibited and will not be tolerated.

The participants should understand the professional pressures and time constraints faced by their mentors. For NASA scientists and engineers, mentoring is not their primary responsibility; in fact, the time spent with interns can be time taken from their own research.

The participants will give their hosts a detailed schedule of the Academy, and inform them in advance, as early as possible, of any schedule changes decided by the Academy staff, or unplanned absences due to illness or other unpredicted circumstances.

6.2 GRIEVANCE PROCEDURES

The Academy Principal Investigators are encouraged to raise any issues of concern involving the Academy community. More serious academic problems should be directed to the Dean of Academic Affairs (Dr. Joseph Di Rienzi) and any other problems to the Program Manager (Mr. David Rosage). Further appropriate actions will be taken by the Program Co-Directors (Dr. Richard P. Fahey and/or Dr. Richard C. Henry) and the Chief of University Programs Office (Dr. Vigdor Teplitz).

The actions taken will be decided by the Academy staff, and will range from mediation to dismissal of the Academy participant involved.

Full confidentiality will be respected if requested. Lodging a grievance shall not affect negatively the individual who initiated the grievance event.

6.3 GROUNDS FOR DISMISSAL

A NASA Academy Research Associate must act professionally and maintain amiable conduct in the laboratory at Goddard Space Flight Center, at the Academy House, on the University of Maryland Campus, on trips, and at lectures and meetings. The following is a list of disruptions or violations, which can lead to dismissal:

- Providing misleading or false information on the application
- Inappropriate use of government facilities
- Actions disruptive to the group during activities or at the house
- Unprofessional conduct in the lab, or during group activities (speakers, tours, trips, outreach activities)
- Lack of respect of Principal Investigators, staff, speakers, and fellow Research Associates
- Failure to participate in the Group Project
- Failure to complete assigned tasks and deliverables (i.e., poster session, final presentations, speaker thank-you notes)
- Unexcused absences
- Other actions deemed inappropriate or disruptive by the Academy Staff

Infractions will be documented and may result in disciplinary action up to and including dismissal, in the following order:

1. Oral Warning
2. Written Warning
3. Final written warning and/or disciplinary probation
4. Dismissal

MENTORING RESOURCES

1. M.W. Galbraith and N.H. Cohen, Eds., *Mentoring: New Strategies and Challenges*, Jossey-Bass, San Francisco, 1995.

2. H.E. Johnson. *Mentoring for Exceptional Performance*, Griffin Publishing, Beverly Hills, 1997.

3. M. Murray, *Beyond the Myths and Magic of Mentoring: How to Facilitate an Effective Mentoring Program*, Jossey-Bass Publishers, San Francisco, 1991.

4. G.F. Shea, *Mentoring: A Practical Guide, Crisp Publications*, Menlo Park, 1998.

5. M.Sinetar, *The Mentor's Spirit: Life Lessons on Leadership and the Art of Encouragement*, St.Martin's Press, New York, 1998.

6. S.G. Brainard and D.A. Harkins, "*A Curriculum for Training Mentors and Mentees*", WEPAN Western RegionalCenter, University of Washington, Seattle, WA, 1998.

7. N.A. Gaffney, Ed., "*A Conversation about Mentorship: Trends and Models*", Council of Graduate Schools, Washington DC, 1995.

8. K.E. Kram, "*Mentoring at Work: Developmental Relationships in Organizational Life*", Organizational Behavior and Psychology Series, H.J. Reitz, Ed., Scott, Foresman and Co., Glenview, IL, 1985.

9. M.A. Wunsch, Ed., "*Mentoring Revisited: Making and Impact on Individuals and Institutions*", New Directions for Teaching and Learning, 57, Spring 1994, Jossey-Bass Publishers, San Francisco, CA, 1994.

10. Mentoring Information at the Los Alamos National Laboratory: http://education.lanl.gov/RESOURCES/mentors/Education.html

11. Mentoring Information at the University of California at San Diego: http://rcr.ucsd.edu/content/descriptions/mentoring.htm

12. Mentoring Information at Penn State University http://www.hhdev.psu.edu/careers/

13. "*Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering*", National Academy of Sciences, National Academy of Engineering, Institute of Medicine

Thank you, and enjoy your 2004 student coworkers
and your 2004 NASA Academy mentoring opportunity!

Appendix I: IMPRESSIONS OF NASA ACADEMY ALUMNI

"*The Academy is the definition of a full-time experience - if this was the summer you planned on catching up on your reading or exercising four hours a day - forget it! The three most important qualities you need to have are a PASSION for space and the future, a COMMITMENT to the Academy (you must "give yourself to the Academy), and enough CONFIDENCE in yourself to believe you can change the world. Over only ten weeks you will garner more useful, real-world knowledge than you did all through college, meet an incredible number of brilliant and exciting people, and supply yourself with more tools than you could ever use to achieve your highest goals!*"

- Eric A.

"Attending the Academy was one of the most rewarding experiences of my college career, the work is challenging and the friends you make will last a lifetime."

- Jeff A.

"The NASA Academy is a tool for making your dreams into reality. It provides the right framework and opportunities for developing the maturity and gaining the knowledge needed to interact with today's engineers and scientists."

- Rob B.

"*The NASA Academy was a refreshing change after years of classroom and textbook learning. It was all about leadership and learning through interaction. The Academy gave me a renewed sense of enthusiasm for the space program and reminded me about all of the reasons why I chose this field in the first place!*"

- Robin S.

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- Robin S.

"*The NASA Academy is a once-in-a-lifetime experience. In a ten week period one learns more about NASA, government and industry relations with NASA, people, and oneself. It is an intense time of learning, experiencing, researching, meeting new people, making life-long friends, and basically having a great time. Not for those who enjoy relaxing, only for those with an intense desire to lead, and to learn about leading.*"

- Todd C.

"*The NASA Academy is a dream-come-true experience, but only for those people seriously interested in the Space Program.*"

- Warren B.

"*NASA Academy is not for people who lack passion about space exploration; nor is it for people who like to relax for extended periods of time. It is challenging, in that one must handle one's research tasks and also keep up with the tightly-scheduled encounters with NASA engineers, scientists, and administrators. If you can keep up with the pace, the rewards of NASA Academy -- research experience, professional development, and a new group of friends and colleagues in the 'space community,' among other things -- are proportional to your efforts.*"

- Mike L.

"*Ever desire to pull the face off your wristwatch or remove the cover from your radio to discover how these devices operate? NASA Academy does this to the space program, and just like seeing the springs of the watch or the circuit boards in the radio, you'll find yourself with familiar and unfamiliar objects that present to you the challenge of understanding how everything works together.*"

- Laura S.

"*My Academy experience was great. The program is for people who are interested in Space, NASA, and space-related industries. You don't have to have planned out your life in the space industry for the next 10 years, including a trip to the Moon or Mars or even be able to recite the entire Star Wars trilogy from memory (although one of us this summer did :). What you do need is a bright mind, a true interest in Space, and a passion for working with people. This program is NOT for you if you are strictly interested in research work. There are some other programs at Goddard that do that better. This program IS for you if you are interested in doing some research with one of the best scientists or engineers at Goddard on a cutting-edge project, learning about the structure, policy, and politics of Goddard, NASA, and the space program, and working closely with a bunch of motivated, exciting, and bright people like yourself. Of course, it is*

quite a fast-paced program. You'll be working with other students from around the country (and the world) on your own projects"

- Grant B.

"*After my experience at NASA's space academy, I was asked to apply my new knowledge to Utah State University's space design class as a systems engineer. I met my wife in that class. A couple of years later, the professor for that class recommended me for a job as a spacecraft systems engineer, which I accepted*."

- Mark W.

"*The Academy gives you an in depth look at how NASA operates without hiding anything. As a result, you get to see both the strong points and the weak points of NASA. With this knowledge, it is possible for you to start thinking about what needs to be continued and what needs to be changed. I believe this is very important because if you do not understand the dynamics of a system you can not apply control to it*."

- Jose G.

"*SPACE. Suspended effortlessly looking at your mother planet. Your chest feels compressed, your eyes water, as you stand humbly in awe before the greatest and most beautiful sight you have ever seen: Planet Earth. The whole of blue mother Earth. Waltzing with you in the presence of millions of stars, across the greatest of ballrooms... SPACE*."

- Enectali F.

"*The summer that I spent attending the first NASA Academy was one of the most rewarding times of my life. More than anything, the Academy is a learning experience. From my interaction with the program, I learned not only about NASA, but how science and technology relate to society on broader scales, and how important it is that we keep the flame of exploration burning bright and hot*."

- Matt L.

"*This program is truly more than it is billed to be. I feel it has provided me with the tools to begin my long journey as a future leader in our space program and help me meet some incredible people that I will be working with along the way*."

- Ran

Appendix II: INTERNET RESOURCES

- NASA Academy:
  http://www.nasa-academy.nasa.gov/

- NASA Academy Alumni Association:
  http://www.nasa-academy.org/

- NASA Agency:
  http://www.nasa.gov/

- International Space University:
  http://www.isunet.edu/

- The Soffen Memorial Fund
  http://www.nasa-academy.org/soffen/donors.html

- Goddard Space Flight Center
  http://www.gsfc.nasa.gov/

- Goddard Space Flight Center's Mission
  http://www.gsfc.nasa.gov/about_mission.html

- University Programs Office
  http://university.gsfc.nasa.gov/

Appendix III: USEFUL CONTACTS

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