NASA ACADEMY

June 6 - August 13
2004

STUDENT HANDBOOK

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

NASA ACADEMY AT THE
GODDARD SPACE FLIGHT CENTER

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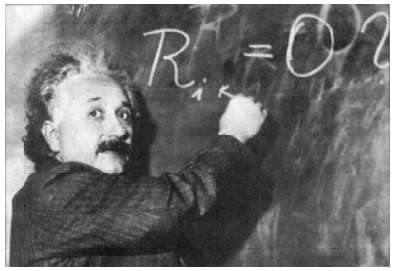
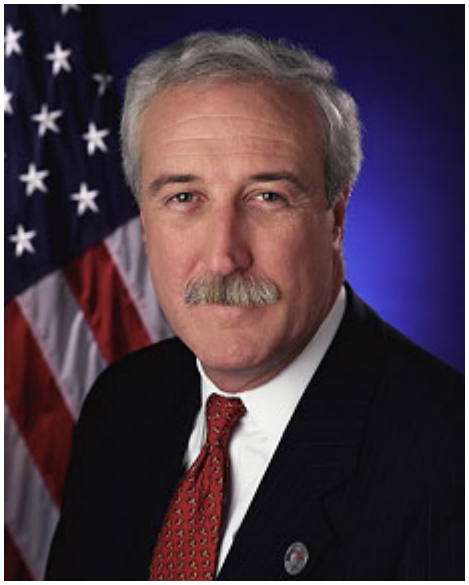
"*It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow."*

Robert H. Goddard
(1882-1945)

"*Bear in mind that the wonderful things that you learn in your schools are the work of many generations. All this is put into your hands as your inheritance in order that you may receive it, honor it, add to it, and one day faithfully pass it on to your children...*"



Albert Einstein
(1879 - 1955)



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 and guidelines that will assist you in becoming familiar with the NASA Goddard Space Flight Center (GSFC) and the NASA Academy program. It also explains the conditions of your participation, your privileges, and your responsibilities as a NASA Academy participant (Research Associate - RA) and the procedures observed by the University Programs Office in managing the program. Please retain this handbook for reference during your tenure.

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1 INTRODUCTION

1.1 WELCOME

Welcome to the NASA Academy at the Goddard Space Flight Center! As a participant, you will join the ranks of distinguished students/scholars/ leaders selected in a rigorous National competition to represent the NASA Academy at the Goddard Space Flight Center. This will undoubtedly be a unique experience that you will remember for the rest of your life. You will be offered opportunities that few others, even those within NASA, are privileged to experience. You are urged to contribute to the accomplishments and prestige of the program through the excellence of your work and loyalty to your teammates.

1.2 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.

1.3 ELIGIBILITY, SELECTION CRITERIA, AND PLACEMENT

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. 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
- citizenship or permanent residence is required for US applicants

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.

1.4 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, you 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.*

1.5 PROGRAM 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

1.6 THE NASA ACADEMY ALUMNI ASSOCIATION (NAAA)

Consistent with Jerry's original vision, the Academy experience does not end after the summer program is over. Participants become part of a network of students and aerospace professionals through the NASA Academy Alumni Association (NAAA). Founded in 1998, it has developed such a network of enthusiastic professionals committed to contributing to the space program and to providing its members support in their pursuit of space-related careers.

Among NASA Academy alumni are students completing advanced academic degrees, employees of NASA Centers, NASA contractors, and other professionals in space-related fields ranging from science and engineering to education and journalism. The Academy alumni are increasingly involved in the selection of the Academy participants and the strategic development and management of the Academy.

The mission of the NAAA is to:

- Ensure the quality of the NASA Academy programs
- Promote communications, fellowship, camaraderie, and an esprit de corps among all alumni
- Provide a mechanism to facilitate alumni participation in programs and projects that promote NASA and space education and that communicate the excitement of space exploration and development.

1.7 THE DR. GERALD A. SOFFEN MEMORIAL FUND FOR THE ADVANCEMENT OF SPACE SCIENCE EDUCATION

Throughout his life, Gerald Soffen dedicated himself to fostering the growth of young space scientists and engineers. The Soffen Fund was established to continue Jerry's commitment to the future of space by supporting motivated students in the fields of space science and engineering.

Since the spring of 2002, the Soffen Fund has been providing students pursuing undergraduate or graduate degrees in space-related sciences and engineering with Travel Grants. The Travel Grants will enable awardees to attend professional conferences to present research.

Over the next several years, the Fund intends to offer its first set of $25,000 Astrobiology Graduate Fellowships.

2 MANAGEMENT AND ORGANIZATION

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 morning 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 informs, 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.

2.3 ACADEMY 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

Some of the individual and collective responsibilities of Academy participants include:

- 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, rap 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 modules in conjunction with their research projects for the Academy Website
- Create weekly written reports of the Academy activities
- Create the Goddard Academy Yearbook
- Create an original "Logo", "Patch", and "Mascot" for the Goddard Academy
- Send letters of thanks to speakers and hosts
- Assist in the operation of the Academy as needed

3 THE ACADEMY PROGRAM

3.1 THE RESEARCH PROJECT (LABORATORY WORK)

Kenneth Vanhille (2002) with his experimental setup for testing fiber optical Raman Laser Amplification for remote Sensing Spectroscopy.

To the extent possible, each Academy participant has been placed in a host laboratory or research group that matches the participant's educational interests and background. Details of the assigned work are established in agreement with the host research supervisor (Principal Investigator or group leader) and may include equipment design and testing, experimental data collection and processing, computer software development and use, field work, etc. Most of the projects are funded by the Director's Discretionary Fund (DDF) and are at the "cutting-edge" of science and technology. It is important that you contact your supervisors/PIs prior to arriving at Goddard to obtain brief introductions to project main ideas, literature references, and other information with which to prepare in advance.

3.2 THE GROUP PROJECT

Academy participants have the opportunity to choose the topic of a "Group Project" from a list of suggested projects that are relevant to the NASA Goddard Space Flight Center. By communicating with each other before arrival at the Goddard Center, you will be able to debate and to agree on the selection of a project that will engage the interest and talents of all the participants. The idea and objectives of the Project will be described in detail by leading experts at the beginning of the Academy session. After this, you will be free to creatively develop the project as a team to the extent that time and financial constraints will permit. Consultation with experts will be available as needed.

Group project work (2002).

3.3 LECTURE/WORKSHOP CURRICULUM

The Lecture/Workshop curriculum of the NASA Goddard Academy contains topics related to:

- The six NASA strategic enterprises:
  - Aerospace Technology
  - Biological and Physical Research
  - Earth Science
  - Education
  - Human Exploration and Development of Space
  - Space Science
- Advanced Concepts and Mission Design
- Space Commercialization
- Space Policies, Space Law, and International Issues
- Leadership
- Outreach and Workforce Development ("as only NASA can")

Meeting with Astronaut Dr. Shannon Lucid at NASA Headquarters (2002)

3.4 AFTER-DINNER GUEST PRESENTATIONS

Regular evening learning events will be scheduled at the Academy residence house. Distinguished speakers will attend the dinners and give after-dinner presentations related to their work and contributions to the space program, or their personal experiences along their education and career development path. Past visitors at the House have included NASA Headquarters officials, scientists from various colleges and universities, Academy alumni and staff members, etc. Some time slots have been reserved for the Academy to invite speakers at their own discretion.

3.5 Site Visits

A number of site visits will be organized to important offices, laboratories, and space-related companies, including:

- NASA Headquarters
- NASA Langley Research Center (LaRC)
- NASA Goddard Wallops Flight Facility (GWFF)
- NASA Glenn Research Center (GRC)
- NASA Johnson Space Center (JSC)
- NASA Marshall Space Flight Center (MSFC)
- Orbital Sciences Corporation
- The Johns Hopkins University Applied Physics Laboratory (APL)
- University of Maryland Neutral Buoyancy Laboratory

3.6 Professional Extracurricular Activities

The following are some of the traditional and new extracurricular activities tentatively planned for this year:

- Lunch with members of the NASA Goddard Retirees Association
- Lecture Webcast from the International Space University, Strasbourg, France
- Attendance of a relevant US Senate testimony in Washington, DC
- Lunch with the Maryland Space Business Round Table
- Visit to the Naval Observatory in Washington, DC
- Girl Scouts Senior Scout and Cadet Rocket Day

Mr. Sean O'Keefe, NASA Administrator, Astronaut Jim Voss, and the 2002 Goddard Academy during a U.S. Senate Hearing

3.7 Learning Opportunities outside the NASA Academy Program

- Scientific and Engineering Colloquia at various locations, often in Buildings 3 or 8 Auditoria.
- Occasional "Lecture Series" on specific topics, usually open to all NASA employees, the press, and/or the general public. Often, the lectures are in conjunction with informal receptions, which give the attendants the opportunity to speak with the featured guests and with the other participants.
- Seminars held in various Branches or Laboratories
- "Brown Bag Meetings", a series of lunchtime talks given by guest speakers in an informal setting. In the past, many of the speakers have been NASA Academy Alumni.
- "Tea and Poster Sessions", featuring the progress of various GSFC projects, for the information and benefit of all Goddard interested employees. Usually, these events are held in the atrium of Building 28.
- The GSFC Library of books and periodicals currently provides loan services and access to extensive on-line resources. At your request, you will be issued a Library Card to check out materials for up to two weeks.

3.8 Additional Extracurricular Activities

The following are some of the interesting, fun, and group bonding Academy activities, many of which have become regular components of the NASA Academy Program:

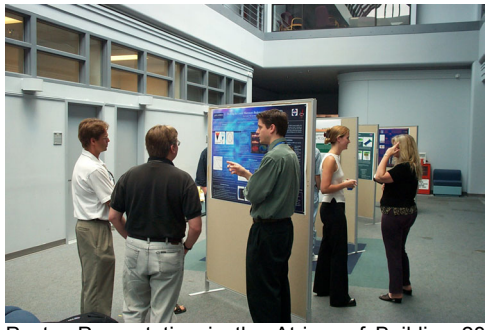
Fourth of July Celebration at the Washington Monument in Washington, DC (2002).

- Weekend visit to Mrs. Kazuko Soffen, wife of the late Jerry Soffen
- Weekend visit to Washington, DC museums and monuments
- "Stargazing" excursion with Dr. Jim Crawford from Pennsylvania State University
- Weekend white-water rafting on the Youghigoheny River
- Weekend spelunking in the Laurel Caverns
- Independence Day celebration in Washington, DC and at Mrs. Kazuko Soffen's home
- Cookout at Mr. Al Diaz's (NASA Goddard Center Director) home
- Cookout with local NASA Academy alumni

- Weekend visit with Academy families - NASA Goddard picnic
- University of Maryland SPIRAL group meeting at the house
- Naval Academy Trip

If possible, bring a digital camera. You will collect pictures for your own memory-album, and also contribute to documenting the Academy activities. Selected pictures will be included in the weekly on-line reports and, if you choose to create one, the Academy Yearbook.

3.9 Poster Session


Poster Presentation in the Atrium of Building 28 (2002).

The Academy Poster Session will take place in the atrium of Building 28. You are expected to be able to demonstrate familiarity with the assigned research work and to present, in a clear and succinct way, the progress achieved up to that date. The poster session will be attended and evaluated by NASA scientists, engineers, visitors, as well as faculty and researchers from the University of Maryland College Park. You are expected to be able to answer the attendees' questions and explain the basic ideas and the experimental set-up of the projects, as well as your contribution to the work. The informal professional interactions with the experts attending the Poster Session may be extremely beneficial to you. Take full advantage of this opportunity. The comments and criticism received may help enhance your performance in the assigned project during the remaining weeks of work and in your preparation for the Final Presentation Session. Distribute your business cards and collect cards from the attendees. These may be valuable professional contacts to be used in your future educational and employment-seeking efforts.

The Academic Dean and the other Academy and Goddard staff will assist you by promoting this event, providing complete instructions, and helping prepare, as needed, professional-quality posters.

3.10 Outreach/Pipeline Events

Special student events and community service projects are being planned. These events will give the academy an opportunity to interact with high school and middle school aged students. The Academy will talk to the

students as a group and individually, with the goal of inspiring them in the area of space-flight, math and sciences, and perhaps even establishing a "pen pal" for post Academy interaction. The community service projects allow the Academy to donate their time towards a good cause while gaining teamwork skills.

3.11 Family Weekend

Participants' family members are invited to attend a special Saturday morning tour of the Center followed by an afternoon barbeque, model rocket launch, and other recreational activities at the Goddard Recreational Center, where the posters from the previous Thursday will be on display. Sunday is reserved for you and your family members to spend the day together.

3.12 Final Presentation Session and Graduation Ceremony


The 2002 Goddard Academy at the NASA Headquarters in Washington, DC.

The last day of the Academy session will be important and festive. It will represent your "graduation" day. A full-day "NASA Academy Final Presentation Session" will be organized, and the general attendance is expected to include the participants' supervisors and co-workers, other GSFC scientists and engineers, representatives of the NASA-GSFC administration, the NASA Academy staff, and NASA Academy alumni. Special invitations will be sent to representatives of the NASA Headquarters, the NASA-GSFC Senior Scientists, and the external experts who have interacted with the participants. You will receive abundant support in preparing presentations of high quality content and form.

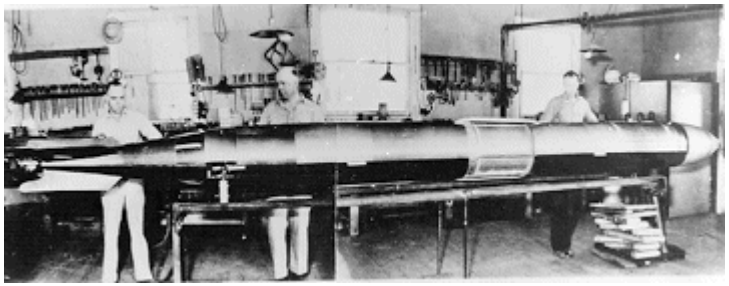
At the conclusion of the Final Presentation Session, you will be officially inducted into the NASA Academy Alumni Association.

4 THE NASA GODDARD SPACE FLIGHT CENTER

4.1 THE NASA GODDARD SPACE FLIGHT CENTER (NASA-GSFC)

The NASA Goddard Space Flight Center (GSFC) was established on January 15, 1959, and was named in honor of Robert H. Goddard, the American rocket research pioneer. The first 157 Goddard employees were recruited from the defense Vanguard project and were transferred to NASA from the Naval Research Laboratory in Washington, DC. At present, the Center has 50 buildings on 1121 acres of land. It supports over 11,000 employees (civil servants and contractors) working on projects spanning from Earth observation to design of satellites and space probes, studies of the distant universe, search for life in space, dissemination of science data to international collaborating communities, and education of future generations of space professionals. Today, NASA-GSFC has in its inventory assets in excess of 3.5 billion dollars with six distinct appropriations in Human Space Flight (HSF), Science, Aeronautics and Technology (SAT), Mission Support (MS), Office of the Inspector General (OIG), and the Science, Space and Technology Education Trust Fund.

Robert H. Goddard with his first rocket (1932).



Construction of Robert H. Goddard's rocket used in the flight of April 19, 1932.

The 2001 Goddard Annual Report defines the vision, mission, and values of the Center as follows:

The Vision: *We revolutionize knowledge of the Earth and the Universe through scientific discovery from space to enhance life on Earth.*

The Mission:

- *Goddard Space Flight Center enables discovery through leadership in Earth and Space Science.*
- *We serve the scientific community, inspire the Nation, foster education, and stimulate economic growth.*
- *We partner with others to achieve NASA goals.*
- *We accomplish this through innovation in all we do.*

The Values:

- *Agility... in a dynamic environment ...*
- *Balance... of work life and personal life ...*
- *Creativity*
- *Dedication ..., a commitment to excellence and to individual and team responsibilities*
- *Integrity*
- *Respect ...diversity among people and their ideas ...*
- *Teamwork*

4.2 THE NASA-GSFC GROUNDS AND IMPORTANT BUILDINGS

GSFC is a campus-like facility. An aerial view is shown on the next page and a schematic map is included in Appendix VI of this Handbook. Notice that all the buildings are numbered and that successive numbers are not assigned to adjacent buildings (The buildings were numbered in the order in which they were built).

Building 29 houses the largest clean room of its class in the world.

Aerial view of the NASA Goddard Space Flight Center

On the morning of your first arrival day (the "Orientation Day") you will be given a guided tour of the Center. In the afternoon, the Goddard scientists who will be your individual research supervisors will escort you to your labs and will show you the building(s) and room(s) where you will be performing your research work. Other important buildings that you may frequently visit are listed below:

Building 1 - Goddard Employees Welfare Association (GEWA) Exchange Store, cafeteria, Ticket Master, US Postal Sub-Station, ATM Machine

Building 3 - Auditorium

Building 8 - NASA-GSFC Administration, Director's Office, Graphics Department, Auditorium, Office of Public Affairs

Building 9 - Security gate building

Building 21 - Main cafeteria, Library, NASA Federal Credit Union, ATM Machine

Building 28 - NASA-GSFC Academy / University Programs Office

Building 88 - Visitors' Center, Gift Shop (outside the GSFC ground boundaries. Entrance is from the Soil Conservation Road)

4.3 TRANSPORTATION

As a rule, during the Academy session, the participants will travel in organized groups, using government vehicles, rented vans, the Metro, or commercial airplanes. A NASA shuttle connects the Goddard Center in Greenbelt with the NASA Headquarters in Washington, DC. Within the Center perimeter, a Goddard Taxi assures service on-call between the Main Gate and various buildings. Maps of the DC Metro system are available at all Metro stations. In exceptional cases, individual Academy participants may use the local urban Metrobus system. Metrobus schedules are available at the GEWA store (Bldg 1). Bus T16 provides connections to the Green line Greenbelt Metro terminal near Beltway Plaza Mall, and the Orange line terminal at New Carrolton station. The Academy residence House is located a few minutes walking distance from the College Park Metro Station (on the Green line). The T17 and T15 buses supplement the T16 route during rush hours. Buses generally stop at the Goddard Main Gate once every hour and more frequently during rush hours.

4.4 YOUR IMAGE

As NASA Academy participants, you represent the Academy and NASA in all situations. It is important to remember that your actions can affect (positively or negatively) the reputation of the Academy as a whole. It is imperative that you make a positive impression on NASA workers, administrators, scientists, visiting personalities, and other interns you are most likely to meet. To optimize the professional contacts you will make as Academy Research Associates, you will be issued a number of business cards.

Regarding the dress code, casual but appropriate wear is generally allowed. On visits to the NASA Headquarters and to various commercial or academic sites, or when delivering formal presentations, business-like attire is required. Obviously, in certain work environments, appropriate protective clothing may be mandatory.

4.5 SECURITY PERMITS AND BADGES

You should be aware at all times that the NASA-GSFC Center is a Federal facility governed by mandatory security rules and procedures which may change, depending on specific domestic and/or international circumstances. All GSFC entrance Gates are guarded by armed security personnel. Vehicles may be stopped for thorough visual inspection and metal-detector searching.

The GSFC Security Office (located in Building 9, at the Main Gate on Greenbelt Road) will issue you temporary personal security badges, which

you should wear in plain view at all times, when entering the Center, while you are within the Center perimeters, and also on the Academy official field trips. You should also have a picture ID with you at all times.

You will also receive a NASA Academy badge, which you may want to wear together with your security badge. The NASA Academy badge will identify you as a NASA Academy Research Associate, but can never be used as a substitute for the personal official security badge.

IMPORTANT NOTE: Do not wear your security badge outside the gate!

Sometimes, security personnel may execute routine checks within the GSFC premises, especially after the regular day-time hours. If you have misplaced your badge, or have lost it and are not aware that this happened, you should explain who you are, and get cleared over the phone by the Academy Program Manager.

Loss of your personal GSFC security badge is a serious matter. You should notify the Academy staff immediately, and they in turn will report the incident properly.

4.6 TRAFFIC

The speed limit within the Goddard Center is 25 mi/hr on roads and 15 mi/hr when approaching the gates and parking areas.

Yield to pedestrians (and geese or deer ...) at all times.

Parking at GSFC is allowed only in designated spaces. No parking permits are required on center.

5 LIVING ACCOMMODATIONS

5.1 THE "HOUSE"

Housing for the Academy continues a tradition started in 1995. In order to create a group environment and receive more efficient services, the Academy participants will be staying at the Sigma Phi Epsilon Fraternity House ("The House") on Fraternity Row of the University of Maryland, College Park (UMCP) campus. Located about five miles from GSFC, the beautiful UMCP campus area is an ideal setting for the Academy off-hours recreational activities.

The Goddard NASA Academy Residence House (2004).

The large residence house has three floors and a basement. The common rooms (dining room, kitchen, living/TV room, study room, and computer room) are located on the first floor and in the basement. All the bedrooms are on the second and third floors. Each bedroom floor contains one bathroom facility with three showers, toilet stalls, and sinks. Women and men will be located on separate floors, with separate bathroom facilities. The bedrooms are designed for double, triple, and quadruple occupancy. Room sharing will be assigned by the Academy staff. Each participant will have a bed, a desk, a chair, and a closet. Single-room occupancies are not available. Consumption of alcohol is not permitted.

5.2 LINEN SERVICE AND LAUNDRY FACILITIES

Sheets, pillows, blankets, and towels will NOT be provided. Each participant should bring two flat sheets, one pillow-and-pillowcase set, one blanket, and two towels. The laundry room, consisting of two free-of-charge washers and dryers, is located in the basement of the house.

5.3 KITCHEN PRIVILEGES

In-house dinner meals will be provided by a contracted catering company every Tuesday, Wednesday, and Thursday. Access to the fully equipped house kitchen is not open on the remaining days of the week, but can be with permission. The refrigerator in the dining room can store provisions. A microwave oven is also available.

5.4 HOUSE CLEANING

A contracted professional cleaning company will service the house twice a week. The cleaning person will vacuum and dust the common areas of the house: the basement, the first floor, and the hallways and bathrooms of the second and third floors. The cleaning person will NOT clean the bedrooms or the kitchen area.

5.5 WORKING AT THE HOUSE

The after-dinner guest presentations will take place in the living/TV room. The basement is reserved for meals, rap sessions, and for individual study or Group Project work. When Academy events are scheduled at the House, it is important that you adhere to basic rules of punctuality, courtesy, and appropriate social appearance and behavior.

Working in the basement of the Academy Residence House (2002).

A limited number of computer stations (equipped with a networked printer, wireless Internet access, and basic software such as MS-Word, Excel, PowerPoint, etc.) will be available in the basement of the house. You are encouraged to bring your own laptop computer. Usage of computer facilities is unlimited, provided that it does not disturb the scheduled group activities or the resting time of the Academy members.

5.6 MAIL

You can temporarily receive personal mail at the House from May 30 to August 13, 2004, at the following address:

Your Name
8 Fraternity Row
College Park, MD 20740

5.7 TELEPHONE

The house telephone will be available for incoming calls only. If you bring and want to use your own cellular phones, you are requested to observe common-sense rules of courtesy compatible with living in the organized group environment of the NASA Academy.

6 OTHER LOGISTIC ITEMS

6.1 ROOM AND BOARD

Room and board for all NASA Academy participants is provided free-of-charge by the NASA Academy. Meals will either be provided or paid for, and will require some financial planning. You will receive several "per diem" advance checks during the Academy term. These cash advances are to be used for meals outside the program, primarily on weekends.

On weekdays, the breakfast and lunch meals will be taken at the GSFC Cafeterias in Buildings 1 and 21. As mentioned before, three days per week (Tuesday, Wednesday, and Thursday) dinners will be catered to the Academy house. The menu selection will be made by the Academy staff during the first week and by the Academy participants during the remaining time.

On Monday, Friday, and the weekends, you arrange for your own meals, but the cost of these meals will be provided by the Academy at a standard rate. For other meals, you will receive a number of food vouchers, called "NASA Bucks", at a rate of $8.00 per day. The vouchers are used as cash in the Goddard cafeteria; however, you cannot receive change back for the unused portion of a voucher.

6.2 THE PER DIEM SYSTEM

To cover meals and certain pre-approved personal expenses such as mileage, office supplies, etc., a per diem system has been established in compliance with the government regulations.

Schedule and Claming Expenses

You will receive a per diem calendar detailing your allowances throughout the summer. At the end of each advance period, you are required to submit a detailed expense claim form. It is in your best interest to follow the cash flow schedule closely.

It is particularly important to submit the final claim form before you return home. These final expenses will be reimbursed by a check mailed to your home address within two weeks of Academy graduation.

You will receive the first installment of your allowance money during the first week of the Academy.

Meals

There will be three set per diem advances to cover dinners for Friday and Monday ($10 each) and all meals for Saturday and Sunday ($5 breakfast, $5 lunch, $10 dinner). Per diem for meals will only be paid for approved days and will excluded group meals funded through petty cash. You may not claim any alcohol beverages.

Mileage Reimbursements

The Academy participants will be reimbursed at standard government rate for mileage covered while driving their personal vehicles for approved Academy purposes.

Credit Union

You will have an opportunity to open a personal account with the NASA Federal Credit Union, which is located on the ground floor of Building 21, next to the cafeteria.

7 THE LOCAL URBAN ENVIRONMENT

7.1 SHOPPING

The Goddard Center is located on Greenbelt Road in the city of Greenbelt. A small mall across the street from the NASA Main Gate has a few restaurants, a K-Mart, and a bank. The nearest supermarket store is the Safeway located at 7595 Greenbelt Road. You will pass it every day on the way to and from work.

College Park is a university town, where you can find many points of interest and convenient establishments (barbers/hairstylists, restaurants, convenience stores, etc.) a short walking distance from the residence house, most of them along the Baltimore Avenue (Route 1). A small strip mall just south of the UMCP campus, on Route 1, has a CVS Pharmacy store. A 7-Eleven is located across the street from this strip mall.

7.2 PHOTOCOPY SERVICE

A Kinko's, open 24 hours/day, is located behind the CVS in College Park.

7.3 MAILING AND SHIPPING

A UPS Store is located near the UMCP main south gate. You can rent a P.O. Box there, if you choose.

7.4 WEATHER

Local temperatures during the summer often pass 90° F (30° C), with high humidity. This can often contribute to intense thunderstorms in the afternoons; so, bring an umbrella.

8 CONDUCT, GRIEVANCES, AND GROUNDS FOR DISMISSAL

8.1 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.

8.2 GRIEVANCE PROCEDURES

The Academy participants are encouraged to raise any issue(s) of concern involving the Academy community. Grievances should first be discussed with the resident support staff (Mr. Miguel Román-Colón or Ms. Carissa Tudryn). 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 action(s) 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(s) involved.

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

8.3 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 your 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)
- Plagiarism
- 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

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.

"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.

"*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: USEFUL INTERNET RESOURCES

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

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

- NASA:
  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

NASA Goddard Academy and University Programs Office Personnel (in alphabetic order):

Mablelene Burrell
University Program Specialist
University Programs Office, Code 603.1
Building 28, Room N157
NASA-GSFC
Greenbelt Road, MD 20771
Tel: 301-286-1122
FAX: 301-286-1610
E-mail: Mablelene.S.Burrell@nasa.gov

Adrienne Byrd
Program Specialist, EduTech Ltd.
University Programs Office, Code 603.1
Building 28, Room N163
NASA-GSFC
Greenbelt Road, MD 20771
Tel: 301-286-1089
FAX: 301-286-1610
E-mail: abyrd@pop100.gsfc.nasa.gov

Miguel Román-Colón
Operations Manager, NASA Academy
University Programs Office, Code 603.1
Building 28, Room N190
Tel: 787 805-5592
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NASA-GSFC
Greenbelt Road, MD 20771
Tel: 301-286-8733
FAX: 301-286-1610
E-mail: rcook@pop100.gsfc.nasa.gov

Mary Dant
Program Support Specialist
University Programs Office, Code 603.1
Building 28, Room N161
NASA-GSFC
Greenbelt Road, MD 20771
Tel: 301-286-7301
FAX: 301-286-1610
E-mail: Mary.J.Dant@nasa.gov

Dr. Joseph DiRienzi
Dean of Academic Affairs, NASA Academy
Special Assistant for Research and Outreach
University Programs Office, Code 603.1
Building 28, Room N196
Tel: 301-286-6167
FAX: 301-286-1610
E-mail: JDiRienzi@ndm.edu

Johnny Erickson
Program and IT Support, EduTech Ltd.
University Programs Office, Code 603.1
Building 28, Room N190
Tel: 301-286-8760
FAX: 301-286-1610
E-mail: jerickso@pop100.gsfc.nasa.gov

Dr. Richard P. Fahey
Program Co-Director, NASA Academy
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FAX: 301-286-1610
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Mr. David Rosage
Program Manager, NASA Academy
University Programs Office, Earth Science Directorate
Building 28, Room N159
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FAX: 301-286-1610
E-mail: David.J.Rosage@nasa.gov

Dr. Vigdor Teplitz
Chief
University Programs Office
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Tel: 301-286-8760
FAX: 301-286-1610
E-mail: kterrell@pop600.gsfc.nasa.gov

Carissa Tudryn
Logistics Manager, NASA Academy
University Programs Office, Code 603.1
Building 28, Room N190
Tel: 301-286-0093
FAX: 301-286-1610
E-mail: ctudryn@pop200.gsfc.nasa.gov

Appendix IV: Things to Bring Check List

Necessary Clothing and Linen

- formal outfit, at least one (suits, ties, dresses)
- casual business outfit, a few
- clothes for lab work
- hot weather clothes (shorts, short sleeve shirts, etc.)
- "going-out" clothes
- casual clothing
- old clothes (pants, shirt, shoes, jacket, and an old pair of shoes)
- bathing suit
- walking shoes, at least one pair
- hiking boots or shoes
- water shoes (for those choosing to go rafting)
- two towels
- two flat sheets, one pillow and pillowcase, one blanket

Other Necessary Items

- student ID
- driver's license/passport/other official ID
- Social Security Card or copy of it
- money (cash, checks, credit cards, bank cards)
- toiletries

Things You'll Need, But May Want to Buy Here

- laundry basket/bag
- detergent
- sunscreen
- postage supplies
- hangers (usually the closets don't have hangers, but there is ample drawer space)

Consider Bringing:

- reference books related to your field and/or lab work
- book bag
- laptop computer
- cell phone
- digital camera
- camera, film, and batteries
- umbrella
- sunglasses
- hat

- beach towel
- Walkman/Discman/MP3 player/portable stereo
- musical instrument
- sports equipment (baseball/softball equipment, soccer ball, Frisbee, ball pump, volleyball net)

Things You Do Not Need to Bring

- cold weather clothes
- cooking utensils
- portable refrigerators/microwaves
- desktop computers

Notes:

- You may want to bring more than one set of formal clothes (multiple shirts, ties, skirts, etc.).
- You may want to bring more than one set of casual business clothes, as you will be using them often.
- You will want to bring old clothes for rafting and spelunking. These clothes may be ruined.
- Be prepared to leave with a lot more than you brought. Most airlines will only let you check two bags, so you may have some shipping charges.

Appendix V: Driving Directions to the Academy House

Sigma Phi Epsilon
8 Fraternity Row
College Park, MD 20740

From Baltimore and Points North

- Take I-95 South to Washington, D.C.'s Capital Beltway (I-495).
- Take Exit 27 and then follow signs to Exit 25 (U.S. 1 South toward College Park).
- Proceed approximately two miles south on U.S. Route 1.
- Turn left onto College Ave
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot.
- House Number eight will be to your right.

From Virginia and Points South

- Take I-95 North to Washington, D.C.'s Capital Beltway (I-495).
- Continue North on I-95/I-495 toward Baltimore.
- Take Exit 25 (U.S. 1 South toward College Park).
- Proceed approximately two miles south on U.S. Route 1.
- Turn left onto College Ave
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot. House Number eight will be to your right.

From Virginia and Points West

- Take I-66 East *or* I-270 South to Washington, D.C.'s Capital Beltway (I-495).
- Go East on I-495 toward Baltimore/Silver Spring.
- Take Exit 25 (U.S. 1 South toward College Park).
- Proceed approximately two miles south on U.S. Route 1.
- Turn left onto College Ave
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot.
- House Number eight will be to your right.

From Annapolis and Points East

- Take U.S. 50 to Washington, D.C.'s Capital Beltway (I-495).
- Go North on I-95/I-495 toward Baltimore.
- Take Exit 25 (U.S. 1 South toward College Park).
- Proceed approximately two miles south on U.S. Route 1.
- Turn left onto College Ave
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot. House Number eight will be to your right.

From Washington, D.C. (Northwest/Southwest)

- Take 16th St. North which becomes Georgia Ave. North at Maryland/D.C. line.
- Go East on I-495 toward Baltimore.
- Take Exit 25 (U.S. 1 South toward College Park).
- Proceed approximately two miles south on U.S. Route 1.
- Turn left onto College Ave.
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot. House Number eight will be to your right.

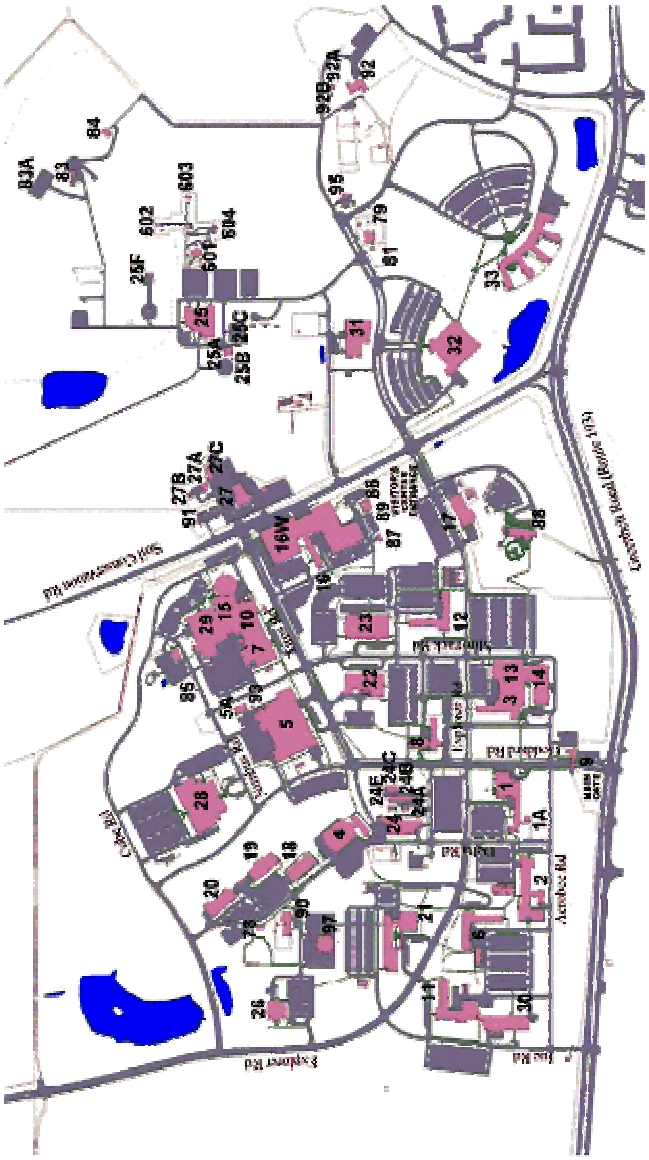
From Washington, D.C. (Northeast/Southeast)

- Take Rhode Island Ave. (U.S. 1 North) which becomes Baltimore Ave. North at Maryland/D.C. line.
- Proceed into the city of College Park.
- Turn right onto College Ave
- Turn left at the first stop sign (Yale Ave)
- Go straight into the fraternity row parking lot and park in the K5 lot. House Number eight will be to your right.

Walking Directions from the College Park Metro Station

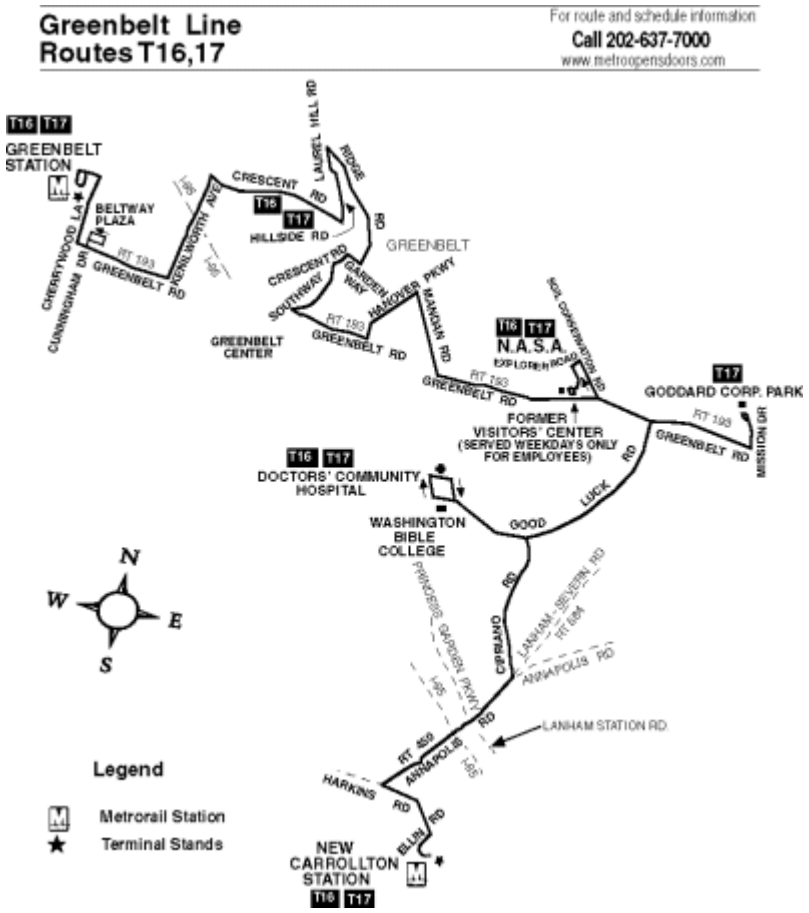
- Get off the train, come down the escalator and when you exit through the fare card machines turn right, walk through the tunnel and exit on the college park side.
- Walk straight and you will be on Calvert Ave
- Walk 7 short blocks and make a right on Yale Ave
- Go straight into the fraternity row parking lot and park in the K5 lot. House Number eight will be to your right.

Appendix VI: NASA GODDARD SPACE FLIGHT CENTER MAP



Appendix VII: METRO SYSTEM MAP

Appendix VIII: METROBUS GREENBELT LINE: ROUTES T16, T17



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