

NASA Ames Academy

2013



Student Handbook

Ames Research Center
Moffett Field, California

WELCOME

Congratulations on your acceptance to the NASA Ames Academy. You are about to take part in the 15th assembly of the Ames Academy, founded with the goal of guiding future leaders of the U.S. Space Program by giving them a glimpse of how the whole system works. The success of the Space Program results from the interaction of: government, academia, and the private sector, each playing a critical and different role in the 50-year old civil program. The Ames Academy is also designed to promote competence in multidisciplinary approaches to science and technology, which merges the perspectives, training, and technologies of a variety of discipline experts throughout the country to attack problems of exceptional technical difficulty. You have been chosen for your scientific accomplishments, scholarly achievement and diverse personalities. Your individual characteristics and experiences will contribute to the unique dynamics of this 2013 academy. Show your colors, give your opinions, and unleash your style.

In addition to gaining experience, and building your resumes, you will be participating in the thirteenth year of the NASA Ames Academy. During this summer's program you will compete with the benchmark set by the previous 14 Academies, as well as setting the precedent for all future academies.

In the following pages is information that will be useful to you during your time in the Ames Academy.

Sections include:

- 1 -Welcome
- 2 -Ames Academy Guidelines
- 3 -Ames Academy History
- 4 -Academy Structure
- 5 -Pre-arrival Information
- 6 -Meals and Lodging
- 7 -Working at Ames
- 8 -Safety
- 9 -Academy Activities and Events
- 10 -Living at Ames
- 11 -Other Activities

One of the most important facets of the Academy is what you and your fellow team members bring to it. It is your Academy. We encourage you to utilize the experience to your advantage.

AMES ACADEMY GUIDELINES

BE SAFE, WORK HARD & HAVE FUN!

You are expected to conduct yourself in a safe, mature and responsible manner at all times as you are representing yourself, your home institution, your Space Grant, NASA and Lockheed Martin. This includes following all Federal, State, and local laws including all NASA and Lockheed Martin requirements. Failure to do so can result in your immediate dismissal from the Academy.

Be on time. Punctuality is the key to success in the Academy. We will leave without you.

Safety is very important. Take responsibility for yourself and help your colleagues. All Academy activities will be conducted as described in the NASA Ames Academy Environmental Health and Safety Plan.

If you are aware of an unsafe act or condition, it is your responsibility to report it to a representative of the Ames Academy Management Team. Remember that safety issues can be reported anonymously by leaving a message with John Livacich at 650-604-3243.

California State Law states that no one under the age of 21 shall consume or purchase alcoholic beverages. You must abide by the state law.

Meet all deadlines on time. If circumstances make this impossible, negotiate new deadlines early.

Ask for help. No one expects you to resolve issues or concerns alone. Bring forward potential solutions and you're Staffers or the Academy Management Team will help you find the best solution.

AMES ACADEMY HISTORY

NASA Ames Academy is based on a successful program begun at NASA Goddard Space Flight Center called the NASA Academy. The Ames Academy is unique in that it focuses on a broad-base of disciplines, incorporating many sciences in order to gain a better and more comprehensive understanding of what is taking place today in the Space Program and to influence its future.

Following the lead of the NASA Academy, begun under the leadership of the late Dr. Gerald Soffen, former Director of the Office of University Programs – Goddard Space Flight Center, the NASA Ames Academy provides opportunities usually unavailable to those outside and within the Agency. The objective being, in the course of the 10-week program, that you, the Research Associates, be exposed to various diverse aspects of NASA and the Space Program (current research projects, developing the unique tools necessary for discoveries in space, tracing the progress of an idea from concept through completion, technology development through flight operations, data analysis to publication, the acquisition and communication of knowledge and its impact on science and society).

In 1993, the first Space Academy was formed. Twenty students, undergraduate and graduate, took part. Because of its success, it was duplicated the following year, adding four more students and a staff to the program. The success of the program spread and other NASA Centers began to take an interest in forming their own specialized academies. Marshall Space Flight Center began their program in 1994 and the NASA Ames Academy and Dryden Academy (Dryden Flight Research Center) were launched in 1997. This year there will be three Academies, Ames Research Center, Glenn Research Center, and Marshall Space Flight Center. As the scientific focus at each of the NASA Centers is different, each Center's Academy reflects its specific areas of specialization. The number of Academies also has the advantage of allowing more students nationwide to participate in the program.

Dr. Brad Bailey heads the NASA Ames Academy as its Director. The Academy support staff will be Arlen Kam and Michael Zero who are alumni of the 2011 NASA Ames Academy. The Ames Academy staff is available to you and invites you to seek them out. Brenda Collins is the civil servant program manager for the Ames Academy. Kristina Gibbs, Doug O'Handley, Matt Reyes, and Desireemoi Bridges and are part of the Academy Management Team.

AMES ACADEMY STRUCTURE

The Ames Academy is designed to operate as a joint effort, with equal input, ideas and energy coming from both the Academy Management Team and the Research Associates (RA). The group meetings and discussions form part of the experience, which will help to shape the Academy to your specific goals and interests. We're all looking forward to a great Academy and a wonderful summer in Northern California!

ACADEMY MANAGEMENT TEAM

Dr. Brad Bailey: brad.bailey@nasa.gov W: 650-604-2104 C: 858-336-2435

Brad received his B.S. in physics with minors in optics, chemistry and Japanese from Rose-Hulman Institute of Technology. From there, he received his M.S. in astrophysics from New Mexico Tech where he used the Very Large Array (VLA) to qualitatively analyze spectra from pulsars. After working for 2 years at NASA Ames as a hardware engineer for the International Space Station, Brad went back to graduate school at Scripps Institution of Oceanography in San Diego where he spent ~8 months at sea diving in submersibles to underwater volcanoes and worked on his PhD in marine microbiology and geochemistry.

In 1998, Brad was accepted into the NASA Ames Astrobiology Academy where he worked with PIs Lou Allamandola and Doug Hudgins on the spectroscopic determination of polycyclic aromatic hydrocarbons in the interstellar medium. He enjoyed the Academy experience so much that he came back in 1999 to work as a staff member for the Academy.

With his varied scientific background, Brad will be a good contact and resource for students looking to break into new fields of interdisciplinary science or for graduate school advice. The academy was a life changing summer experience for Brad as he would guarantee that he would be working at an optical plant as an engineer in Albuquerque, NM without the experience and contacts that the Academy gave to him. Brad is excited to give back to the Academy in this capacity and is looking forward to meeting all of the Research Associates when they arrive in June!

Dr. Douglas O'Handley: dohphd@earthlink.net

Doug O'Handley is returning for the 15th year with the NASA Ames Academy. He retired from NASA after 40 years in government and academia in 1999. He

is currently employed by Lockheed Martin to continue his activities with the Ames Academy. He teaches at Santa Clara University in the Physics Department. Doug has an AB degree in astronomy from the University of Michigan and a Masters of Science and Ph.D. in Celestial Mechanics and Computer Science from Yale University.

Upon graduation from the University of Michigan, Doug was employed with the Time Service and Nautical Almanac Offices of the U.S. Naval Observatory, Washington, D.C. After graduation from Yale University, he joined NASA's Jet Propulsion Laboratory and carried out research in celestial mechanics in support of the early Mariner missions to Mercury, Venus, and Mars. He took the challenge to enter management and led research in artificial intelligence and biomedical technology. After a brief period as staff in the Director's Office at Ames, Doug returned to southern California to work in the private sector at TRW in Redondo Beach. In 1988, he joined NASA Headquarters as the Deputy Assistant Administrator in the Office of Exploration. This was at the period of planning and the announcement of the Space Exploration Initiative by former President Bush to place humans permanently on the Moon and venture on to Mars early in the 21st century. Returning to Ames in 1992, Doug joined the Space Sciences Division in the Space Directorate.

He is a consultant with Orbitec in Madison, WI. The results of a lunar study carried out with Orbitec can be found at <http://www.niac.usra.edu/studies> under O'Handley.

Doug is a Fellow of the Royal Society of Medicine, a Fellow in the Aerospace Medical Association, a Fellow of the American Astronautical Society, and an Associate Fellow of the American Institute of Aeronautics and Astronautics. In addition, he is a member of the International Astronomical Union and the International Academy of Astronautics, and the American Astronomical Society. He chaired, for 10 years, the Space Exploration Committee of the International Astronautical Federation.

Christy, his wife, and Doug will be spending more time in Tahoe this summer but will get to know all of you personally. You always are welcome at either their homes in Morgan Hill or Lake Tahoe. You have become part of our extended family by your selection to the Ames Academy.

Kristina Gibbs: Kristina.Gibbs@nasa.gov W: 650-604-0654

Kristina Gibbs is the Deputy Program Manager for the Academy and the Lockheed Martin Manager overseeing the Academy's daily operations. In

addition to this task, Kristina manages support for other NASA organizations including the NASA Astrobiology Institute and the NASA Lunar Sciences Institute. Kristina also has the responsibility for strategic planning and hiring the Academy staff and drivers.

Until recently, Kristina has been working for Lockheed Martin in support of NASA Ames Life Science Payloads for over 15 years. She first started as a liaison between NASA and the Principal Investigators of the Mir /Shuttle payloads, working collaboratively with Russian Researchers. From 1999 to 2002, Kristina was the Project Scientist for two of the first life science payloads in the ISS. As the first Lockheed Martin employee to manage a NASA payload, Kristina facilitated microbiology hardware development and flight operations. Kristina has supported over 10 Mir, STS and ISS payloads and over 20 Principal Investigators. Just over a year ago Kristina was appointed as Manager to the Lockheed Martin Institutes and Collaborative Technologies section.

Matt Reyes: motorbikematt@gmail.com

Matt Reyes is an alumni of the 2000 Ames Astrobiology Academy (which is what it was called back in the day!) and has not looked back since. A graduate of the University of Florida, Matt has taken several leads around the agency and the commercial space sector with biology, astronomy and commercial space interests. After staying at Ames for a year after the Academy to continue work on his summer project with his mentor, Jeff Smith, Matt returned to UF graduate school to work with Robert Ferl on plant molecular microbiology.

In 2004, Matt started work with the Zero Gravity Corporation, a commercially available microgravity space experience and acted as the director of technical operations. Matt has a strong background and passion for education and public outreach and provides scientific expertise to the general public through webcasts, vodcasts and video editing/publishing. Currently, Matt is working at NASA Ames as the director of the LASP/Stanford graduate program and has his hands in several other pots as well. Matt also is the lead for the Academy on diversity and marketing. His expertise and advise will be valuable to all members of the Academy and he is looking forward to meeting and working with each one of you.

Desireemoi (Desi) Bridges: Desireemoi.Bridges@nasa.gov

Desi Bridges is the Program Coordinator for the Academy. Desi has had a hand in coordinating all the operational needs of the 2013 Academy. She gets things done efficiently and with minimal collateral. Desi is available to help you and the staff with any logistical issues.

Desi joined Lockheed Martin over two years ago. In addition to working at NASA Ames, she is studying criminal justice and business management. Prior to working with us, Desi was employed as a funding specialist and software tester in the mortgage industry.

STAFFERS

The staff is usually one male and one female alumnus from the previous year's Academy. They are familiar with all Academy activities and regulations. The staff will live with you at the apartment complex and run the basic day-to-day operations of your summer. In addition to these responsibilities the staff members coordinate and plan most of your trips, speakers, nightly activities, and presentations. They also serve as mentors/friends if problems arise. They are your liaison with the Academy management.

At the end of your Academy, you will be given the opportunity to apply to be staff for 2014. Please feel free to ask the Staff and Management Team any questions you have about what is required of the staff.

RESEARCH ASSOCIATES

The Research Associates (RA) are the student researchers of the Ames Academy. Fourteen RAs will attend the Academy this year. The responsibilities of the RAs are described in detail in a later section, but boil down to:

- collaborating with PIs on individual research projects
- supporting Academy functions (guest lecturers, daily pow-wows, weekend excursions)
- taking responsibility for cooperatively running the Academy with the other RAs and staff
- giving interim and final presentations describing work accomplished during the summer program
- cooperating and contributing to a group project, to be carried out during the summer program
- getting and giving the most out of and to the Academy—making your mark!

Think of the Academy as a democracy. It is your time and your future you are investing in and you will be given an opportunity to tailor this Academy to suit your purposes and objectives. RAs are expected to work together as a team, making as many decisions that affect the Academy as are feasible and practical. Specific tasks may be broken down into smaller RA working groups.

In the nature of a true democracy, your ideas are invited and encouraged, but the Academy Management Team will have final authority over policies and budget issues.

BEFORE YOU ARRIVE AT AMES RESEARCH CENTER

You will have this handbook to use as a reference guide before you arrive at Ames. The following sections should give you an idea of what to take care of BEFORE coming to Ames for the summer.

E-MAIL CONTACT

Be sure to monitor your email regularly for updates and information on the Academy. Most of you should be in semi-regular contact with the staff and other RAs through e-mail, which gives you an opportunity to not only get to know each other a bit, but also coordinate important items, such as, who is in charge of bringing the stereo, etc.

CONTACT YOUR PI

You will receive your project assignment and Principal Investigator (PI) prior to arriving at ARC. A PI is the lead engineer or scientist on the aforementioned project. In effect, he or she is your boss during your time at Ames. It is very important, therefore, that you contact (by phone or e-mail) your PI before your arrival date at the Academy. Your PI can provide you with information about the lab or office where you'll be working, what you'll be doing and any other questions you may have. Your PI can also send you information or recommend reading to bring you up-to-speed on the area of research before you get here. All of this will help to ensure that things run smoothly from the beginning of the program.

CLOTHES TO BRING

As we mentioned earlier in the Handbook, there will be occasions (field trips, dinners, lectures, hot dates?) when you'll need to wear more formal/business attire (suit & tie or dress, depending upon preference), so toss those things into your suitcase.

Also include business casual stuff as well as comfortable, warm weather clothes. Talk to your PI about lab or office dress ahead of time.

Note: summer days are pretty toasty, but evenings, especially in San Francisco, can be chilly (as Mark Twain once said: "the coldest winter I ever spent was a summer in San Francisco"), so pack a coat...and a bathing suit and anything in between.

ADDITIONAL ITEMS TO PACK

- A day-pack for excursions and luggage to carry on planes for travel etc.
- Camera for wacky Kodak moments
- Student ID for movie, museum, discounts, etc.
- Photos of your hometown, family and friends to share with fellow RAs and staff
- iPOD for trip rides
- Sunscreen, shades, rollerblades, tennis racket, Frisbee, softball gloves, etc.
- Hiking boots, good walking shoes (hiking boots or sneakers with deep tread are required for the half dome hike)
- Alarm clock
- Cell phones
- Personal laptop (please ask your PI if it will be needed for your project)

CARS

The Academy will provide transportation for the RAs to and from Ames and for all Academy events.

Some of you may opt for driving your own car to the Academy rather than arriving by plane. Cars are welcome, but not necessary as transportation will be provided. ***Those planning on driving should let Dr. Bailey know as soon as possible.***

ARRIVAL ARRANGEMENTS

The two most convenient airports are San Jose Airport (SJC) and San Francisco Airport (SFO). San Francisco might be the most convenient, as more flights arrive and depart from that airport, but San Jose is much closer to Ames and easier for picking you up.

International students should arrange to arrive on June 8th. American students should arrange your arrival dates and times so that you will be here around noon on Sunday, June 12th. It would be really groovy if some of you could arrange to come in around the same time, creating fewer pick-up trips and more interesting conversations in the shuttle van.

If you do not notify us of your arrival place, airline, departure and intermediate stops - airports, airline flight number, date and time, it is not likely that you will be picked-up by a staff member unless

you possess tremendous ESP. Tell us the airline, the flight number(s) and when and where—and we'll be there to meet you! The sooner we know your travel plans, the better we can coordinate schedules and meeting points.

ARRIVAL DAY ADVICE

Once you have secured your things in the apartments and have found your bearings, you might want to make use of the free hours (while others are installing themselves in their quarters) to make a trip to get anything you may need for the first week or so: soap, detergent, snacks, etc. The first week of the Academy will be VERY busy. You may not have spare time.

Your arrival Sunday will conclude with a BBQ at Dr. O'Handley's home. There is a large pool and jacuzzi for all to enjoy. So pack your bathing suit on the top of the suitcase.

MEALS & LODGING

MEALS/Per Diem

A daily Per Diem will be provided to assist with the cost of your meals. Amounts over and above your per diem allowances will be paid for out of your pocket. Vouchers will be provided for use at the Ames Cafeteria for breakfast and lunch on Monday through Friday (when at ARC). These vouchers are not to be traded or swapped with anyone and any extra vouchers at your time of departure should be destroyed or turned over to a staff member. Per diem for evening, weekend and excursion meals will be given to you in cash.

The Academy will meet for breakfast every morning at 7:15. The staff will try to join you Monday through Thursday and Academy management will stick their heads in as often as possible. That way we get to know each other and questions, observations, discussions need not be held for too long before they are answered, resolved or discussed.

Lunch is recommended as a group activity, but your research schedule will set our individual lunch times. During the summer Doug and/or Brad will take each of you out individually for lunch. The Staff will put together a sign up sheet.

The apartments have fully equipped kitchens. There is the ability to do common meals in the BBQ area just outside the apartments. Usually the group tries to dine together in the spirit of team building. That will be the domain of the staff members and the RAs to organize.

Meal Schedule

<u>Time</u>	<u>Location</u>	<u>Payment</u>
Breakfast (\$5.00)		
Monday - Friday	Ames Cafeteria	vouchers
Saturday and Sunday	out & about	per diem
Lunch (\$7.00)		
Monday - Friday	Ames Cafeteria	vouchers
Saturday and Sunday	out & about	per diem
Dinner (\$12.00)		
Monday - Friday	out & about	per diem
Saturday and Sunday	out & about	per diem

Ames Cafeteria and other options

Breakfast and lunch are available at the Ames Cafeteria:

Self Serve Breakfast	6:00 a.m. to 6:30 a.m.
Hot Breakfast	6:30 a.m. to 9:30 a.m.
Lunch	11:00 a.m. to 1:30 p.m.
Grab & Go	1:30 p.m. to 2:00 p.m.

If there is a time when you cannot face another day at the Cafeteria for lunch (not unheard of) there are other options, not free but cheap, close to Ames.

*Note: these cannot be paid with vouchers.

LODGING

Housing will occur in the NASA Ames apartment complex. The apartments will have 4 bedrooms and 2 people will be assigned to each bedroom unit. Each bedroom has its own private bathroom. Linens and towels will be supplied by the apartment complex. The rooms are equipped with a full kitchen and living space.

There is a laundry service within the community.

The apartment complex has wireless access throughout for your computing needs. We will not be providing an in-unit phone as most people have cell phones anyway.

WORKING AT AMES RESEARCH CENTER

GETTING AROUND AMES

Ames is basically structured like a university campus. You will be provided a map upon arrival.

All buildings are referred to by number, which may be confusing due to the numbering system employed, which bears little relationship to location. We assume the numbers plot a sort of calendar charting the order in which each building was constructed, but... who knows? All areas on campus can be easily reached on foot, though a bicycle or rollerblades will get you to your destination much faster. The campus is flat, with sidewalks, grassy areas and paved roads connecting buildings. Note: helmets are always required if you ride a bike.

GUIDELINES FOR WORKING AT AMES

Image

As a Research Associate, you will be representing the Academy and NASA at all times and in all situations. Leaving those you come in contact with a positive impression of both yourself and the Academy will only benefit the Academy AND its members. People to impress include: NASA employees, administrators, scientists, visiting industry leaders, and other people you will meet.

Dress

Ames' location in Silicon Valley, as well as in California, ensures the relaxed nature of the Center. It is not unusual for employees to wear shorts in warmer summer months, yet you will run into administrators in suits and ties, too. While there will be situations where dress attire (i.e. suits, sports coat and slacks, dresses) is advisable (such as visits to JPL, meetings with Center leaders), day-to-day priorities (in labs or in staff meetings) should be safety

and comfort. Keep in mind that most labs usually require pants, closed-toed shoes and goggles for your safety. You should consult your PI before your arrival, to make sure you bring all you need.

Ames Security / Badging

Keep in mind that NASA Ames is a federal facility holding billions of dollars in equipment, technology and brain power/research. In accordance with all federal facilities, there are security procedures (subject to change depending upon the current political situation, terrorist threats, etc.), which must be respected and followed.

Upon arrival you will be given a badge which will allow you access onto Ames at all hours of the day and night. Carry your badge with you at all times around the Center and on trips, specifically to JPL and Dryden. Your badge should be worn in plain view on your person while on Ames premises.

If you leave Ames Research Center complex and wish to return, you must have your badge with you. All entrances are protected by armed guards who have strict orders to forbid access to those without proper documents (i.e. badges).

International visitors will require escorts until unescorted access can be approved. This usually takes 1 to 2 weeks. Only NASA “hard” badged people can escort international visitors.

If you arrive to find you have forgotten your badge, stop at Building 26 to explain who you are and request a day badge with your picture I.D. If any problems arise please get telephone clearance through an Academy Director or Manager (Kristina’s number is 650-604-0654 and Brad’s number is 650-604-2104).

SAFETY

Many of the safety aspects will be covered in your various safety trainings when you arrive. Once you have warmed up to the culture around Ames you will notice that safety is a number one priority. It is important that all activities and tasks are approached with safety in mind. There are safety rules to abide by

when on center. You are expected to follow all safety policies on and off campus. Failure to do so can lead to your immediate dismissal from the academy.

As mentioned earlier, at Ames you MUST wear a helmet when riding a bicycle. Not wearing a helmet is a ticketed offense.

When camping or attending an event such as touring it is imperative to always keep each other informed of what you are doing and where you are going, wandering off on your own is not advised. Having your cellular phone accessible and traveling in pairs can be helpful in this group setting.

Many of the outings that you might attend require that you think of safety first in order to avoid any mishaps. You may be on a boat, river rafting, or climbing the cables of Half Dome in Yosemite National Park.

ACADEMY ACTIVITIES AND EVENTS

We'd like you to think of the Academy as an intensive summer-long program, where learning occurs at every hour, encounter, and exchange. Learning opportunities are not limited to your hours at Ames with your PI. And, the Academy itself extends beyond just the 8-5:30 workday.

As alluded to in earlier sections, you are a member of the Academy 24-hours a day. When the workday concludes, there are still decisions to be made with fellow RAs back at base camp. In this section the decision making process (up to the RAs) of the Academy is outlined.

It is a requirement that you participate in all Academy activities and events. Exception may be granted based on individual requests. Some PIs request additional support and this will be accommodated where possible. Family activities will be handled on a case-by-case basis, but should be limited to major family events.

Monday Night Live

These will be traditionally held in the evenings on a daily/weekly basis, depending upon need and activities. Staff and RAs will discuss everything from adjusting to the Academy lifestyle, to weekend activities and group projects. These can be as loosely structured as you wish. This is your time to problem-solve, brainstorm, plan and build the Academy.

Guest Speakers

One of the many advantages of being an Academy member is the opportunity to learn about and talk with many guest lecturers from both NASA and related agencies. These world renowned experts and personalities might range from Astronomer Frank Drake to Center Director Pete Worden. You will also meet many NASA scientists, engineers, and administrators, as well as industry representatives from Silicon Valley corporations, etc. Many of these scientific and industry superstars are not generally available to NASA employees. These are special opportunities available to you, the Academy members.

On average, meetings with guest experts may last 1-2 hours. Most of these meetings will allow time for introductions, a prepared lecture or presentation, and an opportunity to ask questions. The Q & A period provides an opportunity to take these sessions in the direction that most interests you. It is also a chance to impress upon the guests what a unique group the Academy members are. You will receive information on these guest speakers from staff well in advance, which will give you time to think of questions or issues you would like to discuss.

Introductions

At most of the meetings with experts, the experts will introduce themselves and will look forward to being introduced to you, the Academy members. Things the guests will be interested in are, of course, your name, school and major, PI project and explanation of it (if it seems appropriate) and the PI you're working under. There may be times when you'll be called upon to introduce your fellow Academy members, so get to know each other.

You may wish to work on and bring copies of a resume. There will be opportunities where you will be invited to submit a resume. We also will be providing business cards to hand out identifying you as members of the Ames Academy. These will be provided after arrival.

To provide a vague idea of what you might say, here's a sample:
“My name is “Brad”. I am studying geology at the University of Arizona and I am a rising senior.”

Individual Project

During the 10-week program, 60-70% of your time will be spent working with your PI on the research project assigned to you at the start of the Academy. Projects differ and PIs differ, as will the work expected. Some RAs may have

tasks and responsibilities, which are more research-oriented while others' duties may be more hands-on. Communicate with your PI before and during the program to better understand the scope of the work you'll be involved in.

Group Project

In addition to the RA's individual projects at Ames, we require that RAs work together on a group project. A few examples are shown below:

- * A comet impact study
- * A follow-on project to explore the lunar water potentially found by the Lunar Prospector on the poles of the moon
- * The 2000 Academy developed sterile sample collection procedures for a manned mission to Mars, coordinated the implementation of these procedures at Devon Island in the Canadian Arctic and performed biomass analysis on the collected samples to gain information for optimal site selection.
- * Growing Plants in Microbial Altered Lunar Regolith
- * Creation of a microbial fuel cell metabolic reaction detector

The group project is yet another opportunity to develop your leadership skills. It is one project that allows RAs to work together on a specific project, since most of your scientific work will be conducted with your respective PIs. Keep in mind that you have a \$1000 budget and only 10 weeks to plan, execute and report on your project.

It would be highly advantageous to formulate and begin your group project as early as possible, even before you arrive at the Academy. It will be a very busy 10 weeks and you will most likely discover that time will fly by. Getting a head start on the group project is highly advised. Your first major milestone will be your group project proposal and presentation due to the Academy management on Monday June 20st. Contact any potential mentors ASAP, even before you arrive. This will help you to formulate your plans and get started as soon as you are all together.

Midterm and Final Presentations

As your project begins to take shape, you will be asked to present to your fellow RAs and guests a mid-term briefing (15 minutes long plus 5 minutes, allowing for a Q & A period) on your PI project. In the meantime, also keep your final presentation that summarizes the work done with your PI, in mind. These final presentations (25 minutes long plus 5 minutes for a Q & A period) will be given to the entire Academy as well as invited guests on the last day of

the Academy. Those who have not had much experience with presentations are encouraged to seek advice from those (students and staff members) who are familiar with what should go into a presentation.

Presentations should be professional, with visual graphs, charts or images, if applicable. The NASA standard for overheads (viewgraphs) is PowerPoint, which is available to all at Ames.

Parents Weekend

Your family and friends are welcome to visit the NASA Ames Research Center the weekend of July 13, 2013. On Friday, the Academy will host a family orientation and tour of some of Ames' most exciting facilities and research areas starting at approximately 9am. There will be a BBQ on Friday night for everyone to meet and greet. The students will have the weekend free to spend with their families. On Monday July 15th, family will also be invited to listen to the mid-term presentation.

It is important that you inform the Staff of who will be coming and their travel plans. If any visitor is a foreign national or on a Visa, you MUST provide their personal information 2 months in advance. Please ask your family and friends to coordinate their own transportation. We have just enough space in our vehicles for the Academy students and Staff.

Meetings with the Director

We recommend that RAs setup meetings *as early as possible* with the Academy Management Team, and additional meetings later if you feel you want or need them. The purpose of this meeting is to get to know your Academy Directors. By taking advantage of these opportunities to meet with us, you may become more aware of other opportunities available to you inside and outside of NASA. It also provides a chance to voice your opinions and help influence Academy policy. And, it will give you a chance to know all of the upper management, who, besides being fantastic resources are a very diverse and interesting group!

Field Trips and Excursions

The Academy will take several day and weekend excursions/field trips together. Any visitors (non Academy friends, relatives) participating on trips need to be planned at least a month in advance and have their own transportation. If the person is a foreign national, please allow up to 2 months for clearances.

Yosemite National Forest and Half Dome Hike

One weekend during the summer the Academy visits Yosemite and hike the famous Half Dome. The Half Dome hike is approximately 16 miles round trip, a 12-14 hour hike with a 5000 ft elevation change up steep slopes, wet stairs, and dense forest.

Items you should bring: hiking shoes with good grip, whistle, water purification system (if you have one), water filter or iodine tablets (or both), water containers (2 liters), lightweight flashlight, compass, sleeping pad, hat, sun

screen and any other camping items (food, tents, and sleeping bags are provided). Additional tips from the half dome website are located at:
http://www.nps.gov/yose/planyourvisit/halfdome.htm#CP_JUMP_135219

It is highly suggested that you read about the hike and recommended preparation, safety, and wildlife prior to backpacking to come to CA so that you bring as many supplies and equipment as possible.

For those that do not want to hike, other activities are available in Yosemite Valley.

Goddard Space Flight Center, Langley Research Center, Dryden Flight Research Center, SpaceX and Jet Propulsion Laboratory

Located in Maryland and the Mojave Desert respectively, these trips will be VERY HOT, both humid on the East Coast and dry heat in the desert. Pack clothes accordingly.

Other Trips

We will be going to the Desert Research Institute, Reno, and Lake Tahoe. Visits to San Francisco's many diverse neighborhoods, Napa and Sonoma Valleys, Lick Observatory, Monterey Bay Aquarium Research Institute, and an afternoon at Pt. Lobos State Park are all on the agenda for this year's Academy.

The transportation and logistics for field trips will be planned and carried out by both RAs and staff.

LIFE AT AMES

The Ames Campus is located right on Moffett Field nearby the city of Mountain View. This is also the center of Silicon Valley.

Temperatures in the summer can run between 70-90 degrees. Rain is not as common, but not to be ruled out, either. You may want to bring an umbrella, just in case.

Mail

You will receive mail at your apartment. The mailing address will be given to you beforehand when the staff receives the apartment assignments.

Temporary Address

At the beginning, all mail can be sent to you c/o Ames Research Center, NASA Ames Academy, Mail stop T20 - G, Moffett Field, CA 94035-1000. The fax number is (650) 691-9754. Emergency messages can be left at (650) 604-2104, Dr. Bailey's personal office number. Brad's cell phone number is (858) 336-2435.

Post Office

Moffett Field has a post office where stamps can be purchased and packages can be mailed. Its hours are 10:00 a.m. - 3:00 p.m.; phone number (650) 967-4144.

Banking Services

The Meriwest Credit Union is located at the NASA Ames Research Center. There is an ATM associated with the Credit Union and at the cafeteria. Meriwest Credit Union can be reached at (650) 969-1661 should you need banking services.

Libraries

Main Library:

N202, room B1
MS 202-3
8:00 to 4:30
650-604-6325

Life Sciences Library:

N239, room B53
MS 239-13
8:00 to 4:30
650-604-5387

Things to do Around Ames

<http://stuffnearames.pbwiki.com/Index>

Ames Fitness Center

604-5804

Available to all with an Ames badge and a SIGNED PHYSICIAN'S RELEASE (the fitness center requires that you turn in the completed form before you can use equipment at the facility, see Appendix A for the required form.).

Intimate yet comprehensive, the Fitness Center offers lifecycles, starmasters, rowing machines, a treadmill, weights and weight machines, as well as Aerobic classes. There are Ames-sponsored 2, 5 and 10 mile fun-runs once a month at lunchtime. Showers and locker facilities are located inside the building.

Swimming Pool and Fitness

There is a pool, tennis courts and fitness room at the Oakwood Apartments. Also, Doug has a pool. NASA ARC also has a pool that you will be able to use.

Golf

There is a golf course that is part of the Ames Campus although it is unlikely you'll have time for a round of golf during the summer (for some, there is always time for golf though!).

Running, Cycling & Rollerblading

Ames is an ideal place to run, cycle or rollerblade. Please note that helmets while biking or skating are mandatory on Federal Property. In addition to the surfaces being fairly smooth, flat, and wide open, Ames is a mini-wildlife refuge. In the morning, out near the Military Golf Course, you will see ring-necked pheasants, burrowing owls, jackrabbits and loads of squirrels. There are even a few friendly red foxes on the premises that will occasionally trot at your heels.

OTHER ACTIVITIES

Official Academy activities will take up most of your time. Ideally, we'd like to schedule it so you have just enough time to breathe without enough time to get into trouble!

Most of the weekends will be taken up with planned group activities and trips while a few weekends will be open for you to plan your own activities. One weekend can be set aside for your investigation of possible graduate schools. One of the pluses of the Ames Academy is its central location to many things. Within a few hours drive of Ames is the wine country (made up of Napa and Sonoma Valleys), and the striking northern coastal cities of Monterey and Santa Cruz. The historic, eclectic and handsome city of San Francisco is just an hour north, reached by Cal Train or automobile. We encourage you to take part in these outside activities with fellow RAs, as one of the main objectives of the Academy is for you to develop alliances and friendships with others in the program, which you can maintain throughout your careers.

SAN FRANCISCO

GETTING TO AND FROM SAN FRANCISCO

Cal Train can take you to San Francisco's only station in the South of Market (SOMA) district, but the easiest way to arrive is by car. A car will allow you the mobility to see more of the neighborhoods and areas in the city. Parking is a pain, but can be tackled. Beware of the many street sweepers, 2-hour parking and tow signs posted on streets. The meter maids are ruthless!!

CALTRAIN
1-800-660-4287

Use the following website to pick your schedules.
<http://www.caltrain.com/schedule.html>

GEOGRAPHY AND ORIENTATION

San Francisco (frequently referred to as “The City”—but NOT Frisco) is an easy city to navigate. Obvious landmarks are the Golden Gate Bridge, which is to the north, the San Francisco Bay to the east and the Pacific Ocean, to the west. Water, water, everywhere. Each neighborhood has its own special landmark: Downtown has the “pyramid” (TransAmerica Building), North Beach has Coit Tower, Chinatown’s could be the arched entryway on Grant at Bush Street.

A city famed for its hills, it is also possible (and scenic) to walk the periphery along the water, through Fisherman’s Wharf, the Marina District, the Presidio, Ocean Beach, Golden Gate Park, etc.

MAJOR AREAS & ATTRACTIONS

Alcatraz

A former maximum security federal penitentiary now with guided tours.
(415)773-1188 Blue & Gold Fleet (information recorder)
(415)705-5555 Blue & Gold Fleet (order tickets by phone)

Downtown/Union Square

Shopping Central. Macy’s, Tiffany’s, Gumps, FAO Schwartz, etc. Nice view from top of Hotel St. Francis and the Mark Hopkins’ “Top of the Mark”

Embarcadero

Piers, ports and pubs on the water. Ferry Terminal Building is take off point from San Francisco to Sausalito, Larkspur and Tiburon. Business and hotel district.

Financial District

“Wall Street of the West” with the Pacific Stock exchange and landmarks like the TransAmerica pyramid.

Chinatown

Shops, restaurants and residence to the populous Chinese community.

Nob Hill

Ritzy area on top of hill was once home to the Big Four railroad tycoons. The Big Four restaurant and Huntington Hotel stand as landmarks to where their mansions once stood.

North Beach

San Francisco’s Italian heritage is made known through many Italian restaurants, shops, and cafés. Visit popular spots such as Vesuvio, City Lights Bookstore, and Café Trieste.

Telegraph Hill/Russian Hill

Sweeping views of San Francisco from this landmark, where inside Depression era murals were painted by Diego Rivera. Good comet and/or meteor shower watching spot.

Hayes Valley

The city’s soul neighborhood mixes with new wine bars, art galleries and classical music stores.

Jackson Square

The six block area, at the foot of Chinatown and North Beach, maintains the few remaining gold rush era buildings. Its new residents are posh restaurants and art galleries. The Cypress Club or Bix is a glitz place for a martini, where business types go to see and be seen.

Civic Center

This area is under construction, with the new library as its most recent accomplishment. State of the art—with computer terminals hooking to the Internet—the library’s themes are light and bridges, both of which are nicely balanced in this airy-feeling, comfortable book depository.

Japantown

Sushi restaurants and the Kabuki Theaters are some of the attractions you'll find within the landscaped mall that marks the center of Japan Town.

Marina District

The Palace of Fine Arts building, lit at night, serves as this neighborhood's landmark, which features a yacht harbor, nice houses on landfill and a yuppie ambiance on Chestnut and Union Streets, along which are lots of reasonably priced restaurants. World Wraps flaunt their 90's burrito, filled with ingredients like marinated salmon, BBQ chicken, paella, and sautéed veggies with goat cheese. Pluto's serves turkey and mashed potatoes. Noah's Bagels is another fast fix favorite. The Grove, with its café atmosphere, serves salads and other light fare.

Pacific Heights

A great drive or walk through some of the ritzier neighborhoods, featuring restored Victorians, Italian and French-styled mansions, several embassies, and lovely gardens. Jackson Street north of Van Ness is a good sampling of how the other half live.

SOMA

This area (South of Market) in development, formerly home to industrial centers, is currently being transformed to suit the young multi-media types whose offices occupy many of the resurrected brick factory warehouses. More and more trendy restaurants and nightclubs are popping up in this area.

Mission

Built around the Mission Dolores, the 6th mission built by Indians for the Franciscan missionaries between 1776 and 1791 (some dispute between guidebooks). The area is teeming with Hispanic culture and residents, so there are many great restaurants, salsa clubs and art galleries with a Latin American flair.

The Castro

The eclectic mix of restaurants, cafés, movie theaters and art galleries here cater to San Francisco's gay community. Home to the Castro Theater, where old San Francisco favorite films like "Vertigo" are often resurrected.

Haight-Ashbury

It is not what it was in the days when Janis Joplin, the Grateful Dead and Jefferson Airplane used to hang out. It is now home to punks and young professionals, trendy clothing stores, eclectic restaurants and constant

entertainment, some planned, some spontaneous. IF you are 21, and are in the Haight, it would be worth it to stop by ZamZam for a martini and observe a San Francisco original. Hours are irregular and martinis are the only libation available, which is part of the fun.

Twin Peaks

Some of the best panoramic views of San Francisco are here. Good place to watch meteor showers, too.

Golden Gate Park

A lush green oasis in a wacky city that spans 50 city blocks, starting near the Panhandle and ending at the Pacific Ocean. Walking and bike trails abound, as do free summer concerts, rollerbladers and picnickers. Inside the Park are lakes, a buffalo paddock, tennis courts, rose garden and a polo playing field. The California Academy of Sciences, with its Aquarium, Planetarium and Art Museum, is also located here.

Lincoln Park

One of the prettiest areas of San Francisco with a splendid view of the Golden Gate Bridge and the Bay—it is a great spot for picnicking. It is home to the California Palace of the Legion of Honor, a recently renovated museum with great exhibits and a vast and unique permanent collection, ranging from Roman statues to ornate Spanish 16th century ceilings and Louis XIV parlors.

Ghiradelli Square, Fisherman's Wharf/Pier 39

A big draw for tourists, on the water with fresh fish, clam chowder & Sourdough French bread. Ferryboats for Tiburon, Sausalito and Angel Island depart from or near here.

ENTERTAINMENT

For San Francisco, Berkeley and Oakland, the San Francisco Chronicle/Examiner Sunday paper has a special section called the Datebook, (or “pink section” for its pink pages). It IS the HOT TICKET to entertainment in the Bay Area. In addition to plays, opera, symphony, and concert listings, there are many lectures (academic and non) available to the public on a weekly basis. The abundance of cultural activities is almost OVERWHELMING.

On the web, CitySearch and Microsoft’s Sidewalk are on-line city guides filled with up-to-date info on San Francisco. If you have access to the Web, you have a wealth of info at your fingertips with both guides.

AREAS OF INTEREST AROUND AMES

AAA, located on the corner of El Camino and Shoreline, offers free California guidebooks to members. We will also have a reference area with local maps and books available to Academy members.

Palo Alto

University Avenue and around; boutiques, bookstores, fast and cheap eateries, clothing stores, cafés.

San Jose

San Jose Museum of Art (408) 294-2787
Egyptian Museum and Planetarium (408) 947-3636
San Jose Flea Market
Lick Observatory
Tech Museum of Innovation (408) 279-7150

Berkeley

UC Berkeley
Pacific Film Archive (510) 642-1412
Lawrence Hall of Science (510) 642-5132
Lawrence Berkeley National Lab (510) 486-4387

Mount Tamalpais/Muir Woods

(415) 556-0560
Hiking and biking trails
10 minutes north of San Francisco on Highway 101
Some of the tallest redwoods in the state

Sonoma/Napa Valley

Wineries by the hundreds picnic spots, boutiques, etc.
(707) 996-1090 Visitor's Bureau

Half Moon Bay

Wineries, beach, picnic spots

San Simeon

Hearst Castle (805) 927-2020

Yosemite National Park

Backpacking, camping, hiking in splendid national park
(209) 372-0200

Coast Highway, Santa Cruz, Monterey

Mystery Spot	Santa Cruz Museum of Natural History
Beach Boardwalk & roller coaster	UC Santa Cruz
Cannery Row in Monterey	Carmel-by-the-Sea
Point Lobos State Park	Big Sur

APPENDIX A

**AMES FITNESS CENTER
MEDICAL CLEARANCE FORM**
 NEW *
 RENEWAL

NAME:	Last	First	Middle	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Ext:	M/S:	Birthdate:	Age:		
<input type="checkbox"/> Civil Servant, <input type="checkbox"/> Contractor, Company: _____				Org Code: _____	
Doctor: _____			Phone #: _____		
Emergency Contact: _____			Phone #: _____		

*Access to Ames Fitness Center requires an updated Medical Clearance every three years.

MEDICAL HISTORY:								
High Blood Pressure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Asthma	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Dizziness	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Irregular Heart Rhythm	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Shortness of Breath	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Fainting	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Chest / Heart Pain	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Smoker	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Knee Pain	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Heart Attack / Disease	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Diabetes	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Back Pain	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Any medications or medical conditions for which exercise should be limited/closely monitored? Yes No

Other/Explain: _____

NOTE: If you smoke, are obese, over 50 years old, have high blood pressure or other significant medical problems, it is recommended that you have an EKG stress test. NASA civil servants may get a stress test at the Ames Health Unit; all other employees/retirees may obtain a stress test from their private physician.

Signature: _____ Date: _____

PHYSICIAN/NURSE TO COMPLETE:			
Resting: BP: _____	P: _____	Height: _____ (inches)	Weight: _____
If available: Cholesterol: _____ mg/dl		Triglycerides: _____ mg/dl	
Any medications or medical conditions for which exercise should be limited/closely monitored? <input type="checkbox"/> Yes <input type="checkbox"/> No			
RECOMMENDATIONS: (please check one)			
<input type="checkbox"/> Unrestricted physical exercise program			
<input type="checkbox"/> Restricted physical exercise program - restrictions: _____			

Name / Signature of Medical Examiner _____ Date _____

* **NOTE:** New clients must undergo a Fitness Center (FC) orientation prior to getting security clearance. This orientation is held on the 2nd Thursday of the month at 2pm (subject to change) in the Fitness Center, bldg N-221. Upon completion of the orientation session, it will take ~3-5 days to activate your badge for admission to the FC.

NASA AMES FITNESS CENTER

- I, _____ understand that using the NASA Ames Fitness Center is a privilege and that the Fitness Center Staff has the authority to revoke my ability to use the NASA Ames Fitness Center if they consider my behavior at the Fitness Center to be detrimental to other clients, the facility or myself.
- I understand that fitness activities involve a risk of injury and even possibly death and that I am voluntarily participating in these activities and using equipment and machinery with the knowledge of the dangers involved.
- I understand that the activities, programs, and services offered by NASA Ames Fitness Center are sometimes conducted by personnel who may not be licensed, certified, or registered instructors or professionals. I accept the fact that the skills and competencies of some employees and/or volunteers will vary according to their training and experience.
- I acknowledge my obligation to immediately inform the nearest supervising employee of any pain, discomfort, fatigue, or any other symptoms that I may suffer during and immediately after my participation. I understand that I may stop or delay my participation in any activity or procedure if I so desire and that I may also be requested to stop and rest by a supervising employee who observes any symptoms of distress or abnormal response.
- I understand that I may ask any questions or request further explanation or information about the activities, facilities, programs, and services offered by NASA Ames Fitness Center at any time before, during, or after my participation.
- I acknowledge my completion of the introductory session to the Fitness Center and having had all my questions answered.

Client Signature

Date

Fitness Center Instructor

NEW CLIENT, introduction completed

Date: _____

APPENDIX B

Half Dome Cables

The most famous--or infamous--part of the hike is the ascent up the cables. The two metal cables allow hikers to climb the last 400 feet to the summit without rock climbing equipment. Since 1919, relatively few people have fallen and died on the cables. However, injuries are not uncommon for those acting irresponsibly.

Tips while using the cables:

Take your time and be patient with slower hikers

Allow faster hikers to pass you (when possible)

Remain on the inside of the cables

Do not attempt the ascent if:

Storm clouds are in the area

The ground is wet (the cables and rock become very slick when wet; most accidents on the cables occur during wet conditions)

Preparation

Footwear

Bring well broken-in boots with good ankle support and good traction. Some of the most common injuries Half Dome hikers suffer are blisters and ankle injuries; good footwear is the best way to prevent these problems.

Gloves

Many people find gloves helpful on the cables. However, if you bring your gloves up, pack them out. Hundreds of pounds of rotting gloves otherwise accumulate.

Trash

There is no trash service on trails. While hiking in Yosemite, be sure to pack out all trash. When possible, you can help park rangers by picking up trash that you encounter on the trail. Bear proof trash cans are available at trailheads.

Restrooms

Flush toilets are available at the Vernal Fall Footbridge (below Vernal Fall).

Composting toilets are available near Emerald Pool (above Vernal Fall), near the top of Nevada Fall, and in Little Yosemite Valley.

At any other location, you are required to bury any solid human waste at least six inches (15 cm) deep and at least 100 feet (30 m) from water or trails. Pack out toilet paper.

Water

One of the easiest ways to ensure a safe, enjoyable hike is to be sure to have plenty of water. Weather conditions and personal preference affect the amount of water you need, but suggested minimum amounts per person are:

- 1 gallon (4 liters) if hiking to the top of Half Dome
- 2 quarts (2 liters) if hiking only to the top of Nevada Fall
- 1 quart (1 liter) if hiking only to the top of Vernal Fall
- The only treated water on the trail is available (summer only) at a drinking fountain at the Vernal Fall Footbridge (less than a mile from the trailhead). Merced River water is available up to Little Yosemite Valley, however you should treat this water by boiling, using iodine, or using a giardia-rated water filter. Drinking untreated river water may cause significant illness.

Safety

Weather

The summit of Half Dome is a dangerous place during a lightning storm. Check the weather forecast before your hike and try to reach the summit early in the day to avoid afternoon thunderstorms. If a storm appears nearby, do not continue to the summit and, if in the summit area, leave the area (while still using caution when descending the cables and steps).

The summit is typically 15°F (8°C) to 20°F (11°C) cooler than Yosemite Valley and windy conditions are common. Be prepared for cool temperatures and rain showers.

Altitude Sickness

A few visitors each summer have problems with altitude sickness. Symptoms may include severe headache and/or nausea. The only way to relieve altitude sickness is to descend immediately. Other environmental illnesses include heat exhaustion, dehydration, and hyponatremia (low electrolyte levels). In addition to drinking plenty of water, be sure to eat, and to take regular rest breaks in the shade.

Emerald Pool

Entering Emerald Pool and the Silver Apron is prohibited, and entering pools above waterfalls is strongly discouraged, because of frequent injuries and fatalities.

Emergencies

Even if you plan properly and bring the correct equipment, you might still encounter problems. Some cell phones have coverage from Half Dome and from some locations on the trail. Little Yosemite Valley Ranger Station is staffed during summer. You can find the ranger station on the north side of the valley, near where the Half Dome Trail begins to climb out of the valley. Park rangers frequently patrol the trail, so the ranger station is not always staffed. You may need to send some members of your group to Yosemite Valley to get assistance.

Wildlife

Black bears frequent Yosemite's Wilderness and are adept at grabbing backpacks from hikers and campers--during both day and night. Always keep your food within arm's reach (or on your back); never leave it unattended. If you see a bear, act immediately to scare it away: make as much noise as possible by yelling. If there is more than one person, stand together to present a more intimidating figure, but do not surround the bear. Squirrels, Steller's jays, chipmunks, and other animals also live along the trail; never feed them or allow them to get your food. Do not leave your pack unattended (e.g., at the base of the cables or while you take a swim or nap). Keep wildlife wild: respect them from a distance.

Improper food storage and feeding of wildlife may result in a fine (up to \$5,000).

<http://www.friendsofysar.org/safety/hikingSafety.html#lost>