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53.1 Overview

Students are provided special opportunities to gain career-defining experience through internship programs. The goal of these programs to provide educational opportunity must be balanced with the need to work in a safe manner. The short duration of internship programs imposes severe constraints on the ability to train and mentor the participants. The intent of this policy is to mitigate those constraints in order to ensure that students have a good experience while interning at Ames Research Center (ARC).

53.2 Responsibilities

53.2.1 Supervisors and Mentors

Supervisors and Mentors shall:

a) Attend a mentor orientation briefing in which the requirements of this policy, mishaps involving inexperienced workers, supervisor responsibility for student safety, and prohibited work assignments for individuals younger than 18 years of age are reviewed.

b) Ensure that each student is enrolled in a program sanctioned and managed by the Center, regardless of the duration of their work.

c) Prepare a job hazard analysis (JHA) or equivalent task hazard analysis for each intern prior to their arrival at ARC.

d) Specify task-specific safety training and PPE in the JHA.
e) Verify that sufficient classes are available (e.g., Lab Safety Boot Camp) prior to the arrival of the student; pre-register the student if possible.
f) Request additional classes through the Safety Division if required classes are not available in time to complete required training before hazardous activity commences.
g) Review the JHA and training checklist with each intern upon arrival and ensure that the basic safety orientation, hazard communication, and building emergency action plan courses are completed within 48 hours.
h) Provide PPE as specified in the JHA.
i) Provide Task specific training as specified in the JHA.
j) Provide a copy of this policy to each student.
k) For any student or intern needing evacuation assistance, make a plan and communicate it to the FSM.
l) Maintain records of completed and signed orientation checklists.

53.2.2 Acquisition Division

The Acquisition Division shall include notice of this policy in any new agreement through which a contractor or educational institution may hire student interns to work at ARC.

53.2.3 Protective Services Division

The Protective Services Division shall:

a) Establish and maintain procedures for students and visiting scientists to obtain badges for access to center facilities and data systems.
b) Provide a safety orientation for students and visiting scientists that covers traffic safety, bicycle safety, and personal security.

53.2.4 Environmental Management Division

The Environmental Management Division shall provide a safety orientation for students and visiting scientists that covers environmental protection rules and procedures for management of hazardous material and waste.

53.2.5 Occupational Safety, Health and Medical Services Division

The Occupational Safety, Health and Medical Services Division shall:

a) Provide a safety orientation for students and visiting scientists that covers safety requirements, safety policy, hazard awareness, warning signs, hazard reporting procedure, training requirements, personal protective equipment requirements, medical examination requirements, and procedures for access to the health unit and fitness center.
b) Provide safety and health training classes with sufficient capacity to accommodate required training for student interns before they commence hazardous activities

c) Provide guidance and procedures for obtaining required medical clearance for certain hazardous activities or for Fitness Center access

d) Provide required medical exams for eligible interns (See Appendix E for eligibility)

e) Request feedback from interns that can be used to improve safety and health support for their activities and communicate this feedback to the VPP Leaders Committee in October of each year

53.2.6 New Ventures and Communications Directorate

The New Ventures and Communications Directorate shall:

a) Arrange orientation sessions within 48 hours of their arrival for interns in the EAP, ACCEDP, and other intern programs they manage

b) Inform prospective interns about medical and safety requirements and Ames Health Unit procedures.

53.2.7 Human Resources Division

The Human Resources Division shall:

a) Arrange orientation sessions within 48 hours of their arrival for interns and guest workers (Ames Associates) associated with programs they manage

b) Inform prospective interns about medical and safety requirements and Ames Health Unit procedures.

53.2.8 Information Technology Directorate

The Information Technology Directorate shall expedite access to computer accounts by setting up IDMAX accounts needed for access to NOMAD and SATERN so that students can begin safety training when they arrive at ARC.

53.3 Procedure for Job Hazard Analysis and Personal Protective Equipment Selection

53.3.1 Task and Hazard Analysis
The task that the intern will perform shall be defined in writing, and activities that require safety training, medical clearance, or on the job instruction shall be documented in the task description.

If the student intern will be assigned to work only in an office setting, then the mentor shall discuss and ensure that the student understands hazards in the office environment, (such as slip, trip and fall hazards), mishap reporting procedure, emergency evacuation procedure, and prohibited activities (see section 53.7).

If the task to be performed by the student involves any hazardous activity, the applicable hazardous operating procedure, job hazard analysis, or laboratory safety plan shall be provided to the successful candidate to read before arrival at ARC.

When the task that the intern will perform is not covered by an existing hazardous operating procedure, job hazard analysis, or laboratory safety plan, one shall be prepared.

53.3.2 Review of JHA with student before hazardous work is authorized

Before any hazardous activity is conducted, the mentor shall review the work procedure with the intern, and confirm that applicable medical clearance is obtained and that safety training was completed and is understood.

53.4 Procedure for Obtaining Badges and Computer Access for Interns

53.4.1 These steps expedite the badging process for student interns:

a) Contact the host program to determine who will act as the Identity Requester and Affiliation Sponsor for IdMAX.
b) Submit the Ames Visit Request
c) Identity created in IdMAX by the applicable Identity Requester
d) Identity sponsored in IdMAX by the applicable Affiliation Sponsor
e) Submit the NF1760 and ARC835 to Personnel Security for foreign national students, and US citizens or Permanent Residents with an affiliation longer than 179 days

53.4.2 Complete the steps above at least two weeks prior to the arrival date to better ensure the Identity is enabled by the first day.

53.4.3 These steps complete the badging process:

a) Upon sponsorship the student and the Identity Requester should receive an auto generated email to make an enrollment appointment at the badge office.
b) Ensure this appointment is made for the first day of arrival or very soon thereafter.
c) Ensure the student keeps this appointment.
d) Enrollment will require two I-9 Identity documents, taking their picture and fingerprints.
e) This will be accomplished at either Building 26 or building 15.

53.4.4 Detailed information can be found at:

a) Access for All:  https://share.nasa.gov/arc/hr/access4all/Pages/default.aspx,

b) Employee Check-in:  https://checkin.arc.nasa.gov

53.4.5 Sponsors must select “student” rather than “visitor” on visit requests to initiate the correct process for interns

53.5 Training and Certification of Students

These training requirements apply to NASA interns. Contractors and Grantees who bring interns through programs other than those listed in Appendix E shall enforce equivalent safety training requirements for the interns they supervise.

53.5.1 Procedure for Determining Required Training

The Ames Safety Accountability Program (ASAP) training survey shall be used to determine required training.

53.5.2 Access to SATERN

Access to SATERN shall be provided upon arrival at ARC to allow safety training to be completed.

53.5.3 Orientation Safety Briefings

Orientation safety briefings shall be provided to student interns within 48 hours of their arrival at the center.

53.5.4 Minimum Safety, Health and Environmental Training

Minimum training required for all employees at ARC includes these classes:

a) New Hire Safety and Environmental Orientation
b) Building Emergency Evacuation Plan
c) Hazard Communication
53.5.5 Task-specific Training

Task-specific coaching shall be provided to cover all hazards to which students may be exposed in the operations that they may perform, both routine and emergency situations. A sample training outline is provided in Appendix D to indicate the range of topics that may be covered.

53.5.6 Proficiency

53.5.6.1 Mentors (or mentor designee) shall “shadow” students to assess the student’s behavior in their work area. As the student demonstrates proficiency and maturity, less “shadow” oversight is required.

53.5.6.2 Students shall demonstrate proficiency to their mentor before operating instruments or shop equipment independently.

53.5.7 Refresher Training

Refresher training intervals for interns shall be the same as for regular full-time employees.

53.6 Medical Certification for Hazardous Activities

53.6.1 Mentors shall determine whether medical clearance is a prerequisite for planned field work in extreme environments (see APR 8715.1 Chapter 51), use of respiratory protection (see APR 8715.1 Chapter 28), work near high power lasers (see APR 8715.1 Chapter 8), or work with hazardous chemicals (see APR 8715.1 Chapter 38).

53.6.2 If there is a medical fitness requirement, students shall provide a statement from their personal physician stating that they meet those requirements.

53.6.3 A description of NASA medical certification requirements can be found on the Safety Division webpage in the medical component of the ASAP program.

53.7 Prohibited Activities

53.7.1 Child Labor Laws prohibit individuals under the age of 18 from working in any of the following hazardous occupations:

   a) Manufacturing and storing explosives  
   b) Driving a motor vehicle and being an outside helper on a motor vehicle  
   c) Power-driven woodworking machines  
   d) Exposure to radioactive substances  
   e) Power-driven hoisting apparatus  
   f) Power-driven metal-forming, punching, and shearing machines
g) Meat packing or processing (including the use of power-driven meat slicing machines)

h) Power-driven bakery machines

i) Power-driven paper-product machines

j) Manufacturing brick, tile, and related products

k) Power-driven circular saws, band saws, and guillotine shears

l) Wrecking, demolition, and shipbreaking

m) Roofing or excavation operations

53.7.2 Child labor laws include these additional restrictions for individuals under the age of 16. Employees under 16 may not work in:

a) Communications or public utilities jobs

b) Construction or repair jobs

c) Driving a motor vehicle or helping a driver

d) Manufacturing and mining operations

e) Power-driven machinery or hoisting apparatus other than typical office machines

f) Processing occupations

g) Public messenger jobs

h) Transporting of persons or property

i) Manufacturing or product processing workrooms

j) Warehousing and storage

53.7.3 For safety reasons, working alone is not permitted under the hazardous conditions listed below:

a) Electrical work on high voltage equipment over 600 volts regardless of whether or not it is energized.

b) Work on high-pressure equipment (pressures above 15 psig, excluding shop air or instrument supply air up to 140 psig in lines not exceeding one half inch diameter).

c) Work in chemical laboratories during hazardous chemical operations.

d) Activities involving the handling or use of explosives.

e) Work involving machine tools (as in machine shops) and moving equipment.

f) Work involving the use of Class IV lasers, radioisotopes, and radiation equipment.

g) Work in permit-required confined spaces. See chapter 26 for confined space definitions and requirements.

h) Work with cryogenic materials or containers.

i) Work (electrical) on energized equipment of 50 volts or greater.
53.8 Chemical Safety

53.8.1 Operations involving OSHA-regulated chemicals may also be subject to the procedures and policies listed below when the hazards they address are present in the workplace:

a) Radioactive materials, see APR 8715.1, Chapter 7 Radiation Safety Guide
b) Equipment operating above atmospheric pressure, see APR 1700.1, Chapter 10, Pressure Systems
c) Laboratory Operations, See APR 1700.1, Chapter 13 Chemical Hygiene Plan
d) Cryogens, see APR 1700.1 Chapter 15, Cryogenic Safety
e) Access to chemical safety data, see APR 1700.1, Chapter 24 Chemical Hazard Communication Plan
f) Respiratory protection, See APR 1700.1, Chapter 28 Respiratory Protection Program
g) Asbestos-Containing Materials, see APR 1700.1, Chapter 30, Asbestos Management Plan
h) Personal protective equipment, see APR 1700.1, Chapter 33 Personal Protective Equipment (PPE)
i) Lead, see APR 8715.1 Chapter 35, Lead Management Plan
j) Compressed gases, see APR 1700.1 Chapter 44, Compressed Gas Cylinder Safety

53.8.2 Employees shall not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in areas where skin or eye contact with regulated chemicals occurs;

53.8.3 Employees shall not store food, beverages, tobacco, gum, or cosmetics in areas where skin or eye contact with regulated chemicals occurs.

53.9 Office Safety

53.9.1 Students are not permitted in buildings by themselves after normal business hours.

53.9.2 Helmets are required when riding bicycles on base.
Appendix A: Definitions

A.1 Intern – a currently enrolled student or recent graduate undergoing supervised practical training

A.2 Mentor – a wise and trusted teacher or counselor who can teach by example

A.3 Student - an individual who is regularly pursuing a full-time course of study or training at an institution of higher learning

A.4 Supervisor – individual in charge of a branch, division, or directorate who directs and monitors the work of employees

A.5 Visiting Scientist – an individual with a permanent duty station elsewhere working at ARC for less than 180 days

A.5 Working Alone - Performing work while out of audio or visual contact with a co-worker.

Appendix B: Acronyms

ACCEDP Ames Community College Education Development Program
ARC Ames Research Center
ASAP Ames Safety Accountability Program
JHA job hazard analysis
PPE Personal protective equipment
SATUREN System for Administration, Training, and Educational Resources for NASA
SOP Standard Operating Procedure
Appendix C: Sample Job Hazard Analysis

Fruit Flies in Microgravity Project Support: Hazard Analysis

Project Summary:

1) Conduct literature survey of techniques to produce high res, high speed images of individual fly flight paths.
2) Set up and operate a benchtop apparatus; image and determine fruit fly flight paths.
3) Perform test in centrifuge.
4) Use existing or new data to develop math model of fruit fly flight.

<table>
<thead>
<tr>
<th>POTENTIAL HAZARD</th>
<th>SPECIFIC HAZARD</th>
<th>PREVENTATIVE MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bacteria from flies</td>
<td>Disease/illness from contact with flies</td>
<td>• Wash hands after contact with flies and fly containers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Clean surfaces with soap and water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid contact with fly food</td>
</tr>
<tr>
<td>2. Laser/bright light source</td>
<td>Eye damage</td>
<td>• Eye hazards briefing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Employ Ames laser SOP for laser ops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Wear appropriate eye protection</td>
</tr>
<tr>
<td>3. Accidental Fruit Fly Release</td>
<td>Genetically altered fruit flies develop superior intellectual capabilities; ultimately, kill/enslave all humanity.</td>
<td>• Keep fly containers closed</td>
</tr>
<tr>
<td>4. Acrylic container collapse under load</td>
<td>Equipment damage</td>
<td>• Sturdy construction with a large factor of safety</td>
</tr>
</tbody>
</table>
Appendix D: Sample Training Outline

Welcome to Ames - General Briefing Topics

Welcome/Introductions

The Basics

NASA Overview, Organization Codes, Personnel
Building Layout (Tour afterwards)

Emergency Procedures

Building Emergency Action Plan
Earthquake
Fire/Explosion

Hazard Analysis and Safety Plan

Building/Base/Facility Security

You MUST have your pass/ID with you at all times on center
You must NOT display pass/ID when off center
Most buildings are locked from ~5:00pm through~7:00AM each day
“Two Person” Rule - Students are NOT permitted in building by themselves after hours

Telephones

Emergency Numbers 911 (on base desk phones), 650-604-5555 (on base cell phones)

Kitchen Rules

Recycling

Computer Hookup, Email Usage Rules

Transportation/Parking/Traffic Rules/Bicycle Safety

Dress Code (Shop, Lab, Office)
Training

Some training is in person (Orientation sessions, Prevention of Harassment, Safety Training)
Most other training is scheduled via online SATERN access (your internship program can help get this)
Mandatory Training (BEAP, IT Security)
Job-Specific Safety Training as needed (Lockout-tagout, laser safety, confined space, etc…)
Personal development training (First aid, CPR, etc…)
In general, you can take any SATERN training you want, as long as no cost, and mentor approves

Problem Resolution

(Options: Other Students, Mentor, Branch Chief, Student Intern Program)

Facility Tour

High Bay, Test Cells, Shop, Wind Tunnel, or Laboratory where work will be performed
Emergency Evacuation Procedures for all Facilities

Job Hazard Analysis

Every intern MUST read and understand the risk assessment/hazard analysis specific to their project!
Hearing Hazards
Eye Hazards (Different protective equipment, depending on hazard!)
Bodily Injury Hazards
Breathing Hazards

Preventative Measures and First Aid

Emergency Care Equipment (Eye wash, sink, fire alarm, extinguisher)
Personal Protective Equipment (face shields, hearing protection, gloves, overalls)
On-base Emergency Phone Number: 911 (desk phones); 650-604-5555 (cell phones)
Shop or Lab Safety Briefing Topics

Introductions

Authorized Users of Equipment

Posted list of approved operators of floor-mounted power tools

Students can NOT use floor-mounted electric power tools,

Students less than 18 yrs old may NOT use ANY electric tools

Students older than 18 yrs MAY use hand-held electric tools, but ONLY with authorization

Ask questions – how to make parts, how to use tools, best design, best tools

Dress Code in Shops and Labs

No Loose Clothing, Jewelry

No open-toed shoes (sandals, etc…)

Shop or Lab Tour

Floor-Mounted Power Tools

Hand-held Portable Tools (Power and Manual, including soldering equipment)

Tool Cabinets

Paint Hood

HazMat Locker

MSDS Notebook (MSDS = SDS after 2012)

Emergency Care Equipment (Eye wash, sink, fire alarm, extinguisher)

Personal Protective Equipment (safety glasses, face shields, hearing protection, gloves, overalls)

Evacuation route

Lab Safety Plan and chemical list (location)
Paint Usage/Storage
Approved buyer/user/sprayer of paints in building

HazMat/Usage/Storage
Must get approval before bringing ANY new chemical into lab or shop
Must have safety data sheet for any approved chemicals that you bring into lab or shop
HazMats must be properly stored, logged into inventory

Other Safety Issues

First Aid
On-base Emergency Phone Number: 911 (desk phones);
650-604-5555 (cell phones)

Emergency Care Equipment
Eye wash, sink, fire alarm, fire extinguisher

Personal Protective Equipment
Face shields, hearing protection, gloves, overalls
Appendix E: Availability of Safety Training and Medical Services for Students Programs

The table below indicates which medical and safety training services at ARC are available to students. These designations derive from the agreements (grant or other agreement) through which the student intern position is funded.

<table>
<thead>
<tr>
<th>Intern Program</th>
<th>Emergency Medical Care at the Ames Health Unit</th>
<th>Medical Clearance Exam (for hazardous activity)</th>
<th>Access to SATERN for safety training courses</th>
<th>Ames Fitness Center (requires medical clearance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ames Associates</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Ames Community College Education Development Program (ACCEDP)</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>EAP</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Exploration Academy</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>International Space University</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Robotics Academy</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>