High School Students Working in UMDNJ Research Laboratories (Paid or Unpaid)…
…or, ‘How to Help to Ensure a Smooth and (relatively) Painless Process to Become a High School Student Faculty Sponsor’
The approval process will take approximately 30 days!

So give yourself enough time!
What’s the process?

Student enters the system through either:

- Formal high school program
- Directly through Faculty Sponsor

Here are the steps that describe the process:

1. Faculty Sponsor collects and forwards the following completed forms to the Research Office:
   - High School Sponsorship form (completed by student’s high school)
   - Parental Consent and Insurance form (completed by student’s parents)
   - Proposal form (completed by the Faculty Sponsor)

Link to all forms:
http://www.umdnj.edu/eohssweb/publications/highschool.htm
What’s the process?
(continued)

2 Research Office then sends for primary review:
   - Sponsorship and Consent/Insurance forms to Human Resources
   - Proposal form to:
     - EOHSS
     - Radiation Safety

3 Human Resources reviews Sponsorship and Consent/Insurance forms:
   - Confers with Faculty Sponsor (as necessary);
   - Informs Research Office of decision to permit/deny student work in lab.
What’s the process?
(continued)

4 EOHSS and Radiation Safety reviews the Proposal form (*details to follow*) and confers with the Faculty Sponsor, if necessary.
   - Informs Research Office of decision to permit/deny student work in lab
     - If denied, EOHSS/Radiation Safety will work with Faculty Sponsor on issues with Proposal form
     - If approved, EOHSS will notify Research Office.
Primary Review Process: EOHSS/Radiation Safety Criteria

EOHSS and Radiation Safety conduct primary review of the Proposal form to ensure:

- Student will be accompanied by trained adult mentor *at all times*,
- Proposed tasks are appropriate and clearly described, *and*;
- Students will not handle or be exposed to hazardous chemicals and not work with hazardous equipment. *(See chart)*

EOHSS and Radiation Safety will also check to ensure:

- Faculty Sponsor and listed mentors are up to date on mandatory trainings.
- Laboratory safety inspection:
  - Has been conducted within the last year
  - Any safety violations have been abated
  - Radiation wipe tests have been done, as required
Proposal Form: Equipment *Not* Permitted

- Use of X-ray equipment
- Use or handling of sharps:
  - Syringes with needles
  - Scalpels
  - Razors
Students may handle/use the following equipment under the direct supervision of a trained adult mentor:

<table>
<thead>
<tr>
<th>Equipment Description</th>
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<th>Equipment Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosafety Cabinet</td>
<td>Microscopes</td>
<td>Table-top centrifuge</td>
</tr>
<tr>
<td>Balance</td>
<td>Open flame devices</td>
<td>UV transilluminator</td>
</tr>
<tr>
<td>Cell Culture Incubator</td>
<td>pH meter</td>
<td>Vacuum desiccator</td>
</tr>
<tr>
<td>Gel imaging system</td>
<td>PCR thermal cycler</td>
<td>Western blotting equipment</td>
</tr>
<tr>
<td>Electrophoresis apparatus w/safety lock</td>
<td>Shaker</td>
<td>Water Bath</td>
</tr>
<tr>
<td>Microfuge</td>
<td>Spectrophotometer</td>
<td>X-ray film processor</td>
</tr>
<tr>
<td>Micro-pipettor</td>
<td>Stirrer/stirrer-hotplate combo</td>
<td></td>
</tr>
</tbody>
</table>

Proposal Form: Allowable Equipment
Proposal Form: Allowable and Non-Permitted Tasks
<table>
<thead>
<tr>
<th>Task</th>
<th>Permitted with Supervision</th>
<th>NOT Permitted/Will Result in Rejection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affinity chromatography</td>
<td>All methods permitted</td>
<td></td>
</tr>
<tr>
<td>Buffer/media preparation and use</td>
<td>Dilute solutions (pH 5-9)</td>
<td>Concentrated acids/bases</td>
</tr>
<tr>
<td>Chemical Handling</td>
<td>Nucleic acids Buffers dilute acids and bases (pH 5-9)</td>
<td>Carcinogens /Toxic chemicals Highly flammable chemicals Concentrated acids and bases Liquid N₂</td>
</tr>
<tr>
<td>Cytotoxicity assays</td>
<td>(e.g., trypan blue staining of cells)</td>
<td></td>
</tr>
<tr>
<td>DNA/RNA extraction</td>
<td>Kits, plasmid prep only (e.g., DNAzol)</td>
<td>Use of Trizol, Phenol/Chloroform</td>
</tr>
<tr>
<td>ELISA</td>
<td>All methods permitted</td>
<td></td>
</tr>
<tr>
<td>Gene cloning in E. coli</td>
<td>All methods permitted (e.g., K 12)</td>
<td></td>
</tr>
<tr>
<td>Growing yeast</td>
<td>All methods permitted</td>
<td></td>
</tr>
<tr>
<td>Nucleic acid electrophoresis</td>
<td>Casting agarose gels, electrophoresis</td>
<td>Handling of ethidium bromide at any step</td>
</tr>
<tr>
<td>PCR amplification, RT-PCR analysis</td>
<td>All methods permitted</td>
<td></td>
</tr>
<tr>
<td>Protein gel electrophoresis and Western blotting</td>
<td>Running pre-cast gels, trans-blotting</td>
<td>Handling of acrylamide powder, stock solutions, and gels.</td>
</tr>
<tr>
<td>Radioactive materials and/or Radiation producing devices</td>
<td>Electron Microscopy (Approval from Radiation Safety Committee is required)</td>
<td>Some experiments will be considered. (Approval from Radiation Safety Committee is required)</td>
</tr>
<tr>
<td>Standard Tissue Culture</td>
<td>Rodent cells and tissue at BSL-1</td>
<td>Culturing and handling of human materials, tissues, cells and/or cell lines.</td>
</tr>
</tbody>
</table>
Reason for rejection: States that student will be working with several hazardous chemicals.
Proposal Form: Example of Proposal that was Approved

List the materials used in your lab. Include types of chemicals, biological agents, and radiological materials*:

1. Radioisotopes - P32, S35, 3H
2. Acrylamide, agarose, salts, ethanol, phenol, chloroform and other solvents, antibiotics, sugars, dyes, resins, restriction enzymes (some of these are toxic and hazardous, flammable or corrosive). No infectious agents or animal use.

Please describe any direct involvement the student might have with the listed materials.

The student will not use any radioisotopes, toxic or hazardous material or carcinogenic substances.

The only flammable material he will use is a very small quantity of ethanol (less than 1ml at a time and not near a flame).

* All students must take radiation safety training at the earliest possible time after they have started work – unless the student is working in a laboratory that uses radioactive materials, in which case this training must be done before work in the lab starts. All

- Clearly states the student will have no direct contact with hazardous materials
- Laboratory personnel up to date on mandatory training
- Identified laboratory violations were abated
Primary Review Process
EOHSS/Radiation Safety Criteria: (continued)

- If these criteria are met, the Proposal form will be forwarded to the Laboratory Safety Committee via the Research Office for final review.

- If these criteria are not met, the Proposal form will be rejected and returned to the Faculty Sponsor for:
  - Clarification, and/or
  - Revisions (EOHSS/Radiation Safety will contact you to discuss required changes needed for approval.)
What’s the process?
(continued)

5  Research Office:
If approved, Research Office will forward approved proposal to the Laboratory Safety Committee for review.

6  Laboratory Safety Committee will review Proposal form, confer with Faculty Sponsor (if necessary) and report decision to Research Office.

7  Research Office:
- Receives information/decisions from sources
- Makes overall decision concerning student research experience
- Confers with Faculty Sponsor (if necessary).
- Sends final decision to Faculty Sponsor, University Research Office and Human Resources.
We’re Almost Done...

8 Human Resources processes paperwork to put student in the system:
   - Faculty Sponsor must confirm with Human Resources (call/email) that student has been approved to work in the lab, *then* notifies student of decision after confirmation has been made.

9 If approved, the student takes ALL mandatory* training classes PRIOR to starting work.
Mandatory Training Classes

Students must register to attend the following training, PRIOR to starting work in laboratory:

- Laboratory Safety Training
- Biosafety/Bloodborne Pathogens (BBP) Training
- Radiation Safety Training (if laboratory is not licensed to use radioisotopes, this training may be arranged at the earliest possible time after the student has started work)

To register for mandatory training classes…
# How to Register for Training

<table>
<thead>
<tr>
<th>Laboratory Safety</th>
<th><a href="https://bulwark.umdnj.edu/ehss/ehss_train_reg.cfm">https://bulwark.umdnj.edu/ehss/ehss_train_reg.cfm</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>All Campuses</td>
<td>Rockland</td>
</tr>
<tr>
<td>Biosafety/Bloodborne Pathogens</td>
<td><a href="https://bulwark.umdnj.edu/ehss/ehss_train_reg.cfm">https://bulwark.umdnj.edu/ehss/ehss_train_reg.cfm</a></td>
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</tr>
<tr>
<td>Radiation Safety</td>
<td>Newark</td>
</tr>
<tr>
<td></td>
<td>Arranged through the respective Program Coordinators.</td>
</tr>
<tr>
<td></td>
<td>Piscataway/New Brunswick</td>
</tr>
<tr>
<td></td>
<td>Awareness training is provided during Laboratory Safety Training (see above).</td>
</tr>
<tr>
<td></td>
<td>Camden/Stratford</td>
</tr>
<tr>
<td></td>
<td>Contact Tom Boyle, EOHSS at: <a href="mailto:boyletp@umdnj.edu">boyletp@umdnj.edu</a> or 856-566-6189</td>
</tr>
</tbody>
</table>
Process Complete!

Student starts work in laboratory. Faculty Sponsor must provide on-site laboratory safety orientation and may require other training.
Don’t forget to...

- Complete and submit the required forms to the Research Office at least 30-days before desired start date.
- Include in your description only those tasks and equipment that are permissible.
- Ensure all identified laboratory safety deficiencies from your most recent safety audit have been abated.
- Ensure all laboratory personnel are up to date on required trainings.
QUESTIONS???
Feel free to contact EOHSS!

- Newark/Scotch Plains
  65 Bergen Street
  Bergen Building, Room 443
  Newark, NJ 07101-1709
  (973) 972-4812
  Fax (973) 972-3694

- Camden/Stratford
  University Education Center
  40 E. Laurel Rd, Rm 1097
  Stratford, NJ 08084
  (856) 566-6189
  Fax (856) 566-6352

- Piscataway/New Brunswick
  Liberty Plaza
  335 George Street, Suite 2250
  New Brunswick, NJ 08901
  (732) 235-4058
  Fax: (732) 235-5270