The following pages detail the requirements for you to become a radiation worker on campus, have radiation dosimetry issued to you (if applicable by radioisotope) and then use radioactive materials (RAM):

1. You must complete the EHS online training course entitled: Radionuclide Safety and score at least 80% on the quiz to pass the training session. See: https://safety.uncc.edu/training/training-registration/research-laboratory-environment-training-courses for information on how to access and complete the training.

2. You must complete a laboratory specific discussion and overview of the specific RAM usage protocols and procedures as they pertain to your laboratory to be provided by the Authorized User. This is to include a review of specific UNC Charlotte Radiation Safety documents including: Handbook for Radiation Safety, Emergency Procedures, and Material Security & Loss/Theft Procedure. The Authorized User is responsible for ensuring that his/her radiation workers have received adequate instruction in radiation safety principles applicable to specific practices of their laboratory.

3. You must complete the forms detailing any previous known radiation exposure that you have had and provide all associated radiation exposure records.

4. You must review the NRC Instructions Concerning Fetal Exposure and the University Fetal Protection Policy and sign that you acknowledge the fetal protection policy on the final page.

Please forward all of the completed paperwork to the EHS Office – EHS Building. Please contact the Radiation Safety Officer at 704-687-1111 if you have any questions with this process.
Online Radiation Safety Training – please complete the online radiation safety course entitled: Radionuclide Safety that is accessible at the EHS website: https://safety.uncc.edu/training/training-registration/research-laboratory-environment-training-courses The training takes approximately 1 hour and there is a 20 question quiz at the end of the session. The online training covers the following areas:

Radiation Overview

- Electromagnetic Spectrum
- Radioisotopes / Half lives / Applications
- Nuclide Safety Data Sheets
- Four Primary Types of Ionizing Radiation

Personnel Protection and Monitoring

- ALARA – As Low as Reasonably Achievable
- Inverse Square Law
- Time and Distance
- Shielding for types of ionizing radiation (including tenth value layers)
- Non-Ionizing Radiation

Health Hazards Associated With Radiation

- DNA and Radiation
- Ionizing Radiation at the Cellular Level
- Radiosensitivity of cells, tissues and organs
- Damage of high doses of radiation
- Acute and Chronic Exposures
- Radiation – Units of Measurement
- Dose Limits & Typical Doses
- Natural and Manmade Sources

Radiation Usage

- Handbook for Radiation Safety and Nuclide Safety Data Sheets
- Authorized Users
- Radiation Workers
- Dosimetry Program – Dosimetry Do’s & Don’ts
- Ordering Radionuclides
- Radioactive Material Recordkeeping
- Sealed Sources
- Radioactive Material Security
- RAM Surveys
- Emergency Response - Spills
- Environmental Sustainability

Online Training Completion

Name: _____________________  Authorized User: _____________________  Department: _____________________

Completed by Radiation Safety Officer

Quiz Score: ________________  Date of Completion: ____________
Each radiation worker is required to complete Laboratory Specific RAM Usage Training to be provided by the Authorized User. Topics that are required to be covered are listed below. Documentation of training can be completed by using the example memo (below). As a new Radiation Worker, you are required to review and agree to follow the precautions outlined in the following guidance documents:

1. **Nuclide Safety Data Sheets** for the radioactive material you will be using.
2. **The UNC Charlotte Handbook for Radiation Safety**
3. Any specific radioisotope usage procedures that the PI/Authorized User has in place for RAM usage.
4. **Emergency Procedures** including the **Laboratory Contamination Flowchart** and **Responding to Radioactive Material Spills in the Laboratory**.
5. **Material Security and Loss/Theft Procedure**

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**MEMO (example)**

**USE OF RADIOACTIVITY IN THE LABORATORY OF DR. JOHN SMITH**

**DEPARTMENT OF BIOLOGY**

**UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE**

This memo is to document the training of individuals in the hazards and precautions for the use of radioactivity in the laboratory of Dr. John Smith. Specifically, laboratory personnel have read and are aware of the hazards and precautions when using 3-Tritium and 51-Chromium as indicated on the Nuclide Safety Data Sheets and agree to follow the safety requirements detailed therein.

Additionally laboratory workers and radioactive material users have reviewed and are aware of the UNC Charlotte:

1) **Handbook for Radiation Safety**
2) **Specific Lab Protocols for RAM usage**
3) **Radiation Safety Program - Emergency Procedures (in the packet)**

______________________________________________
Dr. John Smith     Date

______________________________________________
Name      Date

______________________________________________
Name      Date

______________________________________________
Authorized User     Date

---
RADIATION SAFETY PROGRAM
EMERGENCY PROCEDURES

1. Report any leak, spill, or release of radioactive material to the responsible Authorized User immediately. If the Authorized User is unavailable, call the Emergency Contact. The Environmental Health and Safety (EHS) Office may also be contacted via University Police number below.

2. Only the Authorized User, trained radiation workers in the lab or the Radiation Safety Officer can complete leak/spill cleanups. All persons working on a leak/spill cleanup must be fully aware of the hazards posed by the particular radioactive isotope involved – always consult the Nuclide Safety Data Sheet for the isotope involved in the spill for hazard/risk control requirements.

3. Prevent spread of contamination from accident site. Use absorbent paper to stop or confine the spread of contaminants if it can be done safely. Decontaminate the area, starting from the perimeter and cleaning toward the center of the spill (use mild cleaning agents such as White Vinegar, Formula 409, Fantastik or Windex). Avoid any physical contact with contaminants.

4. Clear all unnecessary persons from radiation area.

5. Use nearest telephone for communications and avoid walking spilled material throughout the building.

6. Assemble all personnel in nearby safe area until radiation surveys and personnel decontamination are completed by authorized lab personnel and the Environmental Health and Safety Office.

7. Close doors and windows and if isotope is highly aerosol (Iodine 125/131), turn off air handling equipment that could lead to the spread of contamination throughout the building. Keep fume hoods operating within the laboratory.

8. Control access to the radiation area and place warning signs indicating radiation and/or contamination hazards.

9. Decontamination of rooms and building shall be done under supervision of the Environmental Health and Safety Office. See the “Responding to Radioactive Material Spills in Laboratories” flowchart for more information.

10. The Environmental Health and Safety Office will assess the emergency event and contact the NC DHHS – Office of Radiation Protection as required by the reporting thresholds, if exceeded, as detailed in 10A NCAC 15 rule .1646.

EMERGENCY CONTACTS:

<table>
<thead>
<tr>
<th>Radiation Safety Officer:</th>
<th>Office: (704) 687-1111</th>
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<tr>
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<td>Cell: (704) 466-9274</td>
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<td>Alternate Emergency Coordinator:</td>
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<td>Cell: (704) 807-2773</td>
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<td>Campus Police:</td>
<td>911 or (704)687-2200</td>
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1. The usage of Radioactive Material (RAM) must be controlled at all times to prevent unauthorized use or theft.

   • All locations containing Radioactive Materials must be securely locked when not in use. This includes the locking of laboratory doors, storage containers, etc.
   • Constant surveillance and control must be maintained while Radioactive Material is in use. The Authorized User or designee must be in the laboratory or surrounding area, at all times, where he or she is in position to monitor for unauthorized access.
   • This requirement applies to Radioactive Material in waste and experiments in progress, as well as stock solutions. There is no exempt quantity of radioactive material which eliminates this level of security.
   • Radioactive Material must be stored / used within designated areas of laboratories in accordance with the Authorized User’s license.
   • All machines that use Radioactive Material sources, such as Gas Chromatographs (if equipped with an Electron Capture Detector - ECD), and Liquid Scintillation Counters must be kept secure at all times and if their use/storage locations are changed on campus the Radiation Safety Officer (RSO) must be notified immediately upon transfer. Additionally, if these machines are to be surplused, sold, transferred or otherwise removed from campus, the Radiation Safety Officer must be notified immediately so the proper tracking and recordkeeping can be completed on the RAM sources that are contained in the units. Sources may not be removed from the units without notification of the Radiation Safety Officer.

2. The initial suspicion of loss or theft of Radioactive Material requires the immediate notification to the Police and Public Safety Department at (704) 687-2200 and the Environmental Health and Safety Office (EHS) at (704) 687-1111. The information needed is:

   • Radioisotope
   • Chemical and physical form
   • Isotope ID# (assigned by the EHS Office)
   • Quantity (activity)
   • Location from which the Radioactive Material is missing
   • Principal Investigator’s name
   • Person reporting the loss/theft
   • Date and time the Radioactive Material was discovered to be missing

3. The Environmental Health and Safety Office and RSO will determine the extent of hazard presented by the possible loss/theft of radioactive material. Dependent upon the loss/theft risk level to the public health, the EHS Office will coordinate appropriate action with Police and Public Safety, Vice Chancellor for Business Affairs, Associate Vice Chancellor for Risk Management, Safety and Security and the Radiation Safety Committee.

4. The Environmental Health and Safety Office will report the loss or theft of Radioactive Materials to NC DHHS Radiation Protection Section in accordance with 10A NCAC 15 rule .1645.

5. Any loss or suspected theft must be thoroughly investigated and documented. The incident report and supporting documentation will be placed in the radiation safety file for recordkeeping purposes.

**EMERGENCY CONTACTS:**

Radiation Safety Officer:    Office: (704) 687-1111, Cell (704) 466-9274
Alternate Emergency Coordinator    Office: (704) 687-1111, Cell (704) 807-2773
Campus Police:              911 or 7-2200 (If dialing from cell phone: 704-687-2200)
RADIATION WORKER

PRIOR RADIATION DOSE DECLARATION

Please check applicable statement:

☐ 1) I have no prior occupational dose during the current calendar quarter.

☐ 2) I may have received the following occupational dose during the current calendar quarter (list the nature and amount of dose). *

My lifetime cumulative exposure is: __________________________________________.

My current year annual exposure is: __________________________________________.

My current quarter exposure is: __________________________________________.

(If unknown, indicate unknown, do not leave blank)

___________________________________________  ______________________________
Date                                              Signature

*If you indicated No. 2, then you must complete a "Radiation Exposure History" form for each place of employment at which you received an occupational dose, indicating current cumulative exposure.
# Radiation Worker

## Radiation Exposure History

Name: _______________________________  
University ID Number: _______ - _______ - _______

Birth date: _______ / _______ / _______  
Department: _______________________________

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<th>PRIOR EMPLOYMENT:</th>
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Contact person for radiation history:

I assert that this is a complete listing of my prior radiation employment and I request that the prior employer(s), listed above, release my radiation exposure history to the UNC Charlotte EHS Office.

________________________________________  
DATE

________________________________________  
SIGNATURE

---

**RAM packet for Female -- 11/2017**  
8
RAS FORM 2

APPLICATION FOR FILM BADGE OR TLD RING SERVICE

1. Full name of applicant: ________________________________________________________

2. University ID number: ________________________________________________________

3. Date of birth: ________________________________________________________________

4. Gender: _______________________________________________________________________

5. Department: _________________________________________________________________

6. Authorized User: ____________________________________________________________

7. Isotopes used: _______________________________________________________________

8. Location and description of use: ______________________________________________

9. TLD Ring? (see section 2.5 B of the Handbook for Radiation Safety) yes ___ no ___ / Ring Size ______

10. List coverage by all film badge services at locations other than UNC Charlotte: __________________________

The applicant certifies that all information contained herein is true and correct to the best of his or her knowledge.

Signatures:

Date: ___________________________ Applicant: ________________________________

Date: ___________________________ Authorized User: ____________________________

Date: ___________________________ Radiation Safety Officer: _______________________

RAM packet for Female -- 11/2017
Fetal Protection Policy
Declaration of Pregnancy Form

The North Carolina Regulations for Protection Against Radiation (10A NCAC 15, Section. 1610) requires that the dose to an embryo/fetus during the entire pregnancy of a declared pregnant woman not exceed 0.5 rem due to occupational exposures.

This limit is one-tenth the annual limit for occupational exposure. To benefit from this limit, it is required that female employees formally notify the employer of pregnancy in writing.

Please complete the section below and return to the Environmental Health and Safety Office if you choose to make this voluntary notification.

Otherwise, please indicate that you have reviewed this information by completing the last section and return to the Environmental Health and Safety Office.

--------------------------------------------------------------------------------------------------------------------------------------------------

I understand that it is the fundamental responsibility of the pregnant worker to decide when or whether she will formally declare her pregnancy to her employer. I hereby choose to make this formal notification.

Signature  ______________________________________ Date:__________________

Name (please print):  ___________________________________________________

Expected delivery date:  _______________________________________________

--------------------------------------------------------------------------------------------------------------------------------------------------

I have reviewed a copy of the NRC Guide 8.13 (Instruction Concerning Prenatal Radiation Exposure) and the UNC Charlotte Fetal Protection Policy.

Signature:__________________________________________Date:________________

Name (please print):  ___________________________________________________