# FUNDAMENTAL 55: Introduction to Radiation Safety

## Key Takeaways:

– Learning about the sources of radiation they will likely encounter in a lab or clinical setting
– Comprehending the radiation safety program
– Realizing the requirements for projects that involve radiation.
– Understanding what radiation is
– Understanding the forms of radiation
– Learning how radiation is measured.
– Realizing the routes of exposure to radiation
– Realizing the effects of exposure to radiation

## Course Description

Exposure to radiation in laboratories must be monitored and mitigated with appropriate safety precautions, because there is a risk for radiation poisoning. Although, proper Personal Protective Equipment (PPE) and knowledge of appropriate safety measures, laboratory environments can limit the likelihood of exposure for students and staff.

There are various common sources that you may not be aware of within your work environment. Some examples include x-rays, radioactive isotopes, radioactive materials, reactors, particle accelerators, or even smoke detectors. Many of these sources aren’t as severe as dealing with something like Uranium or Plutonium, but they all do produce or emit radiation. Over time, the effects of low radiation can be a factor in health effects like cancer.

As well, there are two exposure pathways possible for radioactive material, both external and internal. External exposure often comes from wavelengths like x-rays or gamma rays that pass through your body. On the other hand, internal exposure happens when radiation is ingested, drunk, inhaled, or injected. The risk from either pathway depends largely on the type of radiation, where it stays, how often it is emitted, and the amount of energy the material radiates. Lastly, it is important to note that children and fetuses are at a greater risk of radiation, due to their cellular development. So take care on Take Your Kid

to Work Day and when pregnant.

Therefore, before entering lab environments, it is extremely important you know the safety basics around dangerous radiation. This introduction will cover radiation safety basics.