

# N03 Radiation & Radiological Protection:

## pre-course reading & case study assignment

Read Chapter 1 of “Nuclear Physics, Principles and Applications” John Lilley, and check you have understood the basic nuclear physics principles by attempting the pre-course question sheet (do not worry too much about section 1.4.1 if you are unfamiliar with quantum mechanics).

Please hand in your answer sheets by 6pm on Tuesday 12<sup>th</sup> September. It will be marked as part of the assessment for this module.

Read also the good general introductory booklet (supplied) “Radiation, People and the Environment”. This is an introductory-level booklet published by the IAEA. (this is attached in the pre-course material email)

If you have any questions or need help please email the module leader, Gavin Smith (gavin.smith@manchester.ac.uk)

### Case studies of nuclear accidents: for presentation during the week

Each of you has been allocated a different case study (please see next page) of a nuclear accident for preparation as a presentation during the week. Please use the report indicated (and other sources if you wish) to prepare a 10 minute presentation that gives

- an overview of the circumstances of the accident;
- describes the impact on public health (present or future);
- suggestions of steps that could be taken to avoid a similar accident occurring again.

This will be presented during the taught week to a sub-group of your fellow students who will have the opportunity to ask you questions on the accident.

**Case studies** (numbers correspond to table above)

1. **The Radiological Accident in Cochabamba**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1199\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1199_web.pdf))
2. **The Radiological Accident in Goiania**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub815\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub815_web.pdf))
3. **Accident at the Nuclear Fuel Processing Facility in Tokaimura, Japan**  
([www-pub.iaea.org/MTCD/publications/PDF/TOAC\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/TOAC_web.pdf))
4. **The Radiological Accident in Lilo**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1097\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1097_web.pdf))
5. **The Radiological Accident at the Irradiation Facility in Nesvizh**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1010\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1010_web.pdf))
6. **Investigation of an Accidental Exposure of Radiotherapy Patients in Panama**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1114\\_scr.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1114_scr.pdf))
7. **The Radiological Accident in Samut Prakarn**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1124\\_scr.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1124_scr.pdf))
8. **The Radiological Accident in Gilan**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1123\\_scr.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1123_scr.pdf))
9. **The Criticality Accident in Sarov**  
([www-pub.iaea.org/MTCD/publications/PDF/Pub1106\\_scr.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1106_scr.pdf))

## Case study allocation

### **Group 1a**                      **Case Study Number**

Marcus Cobb	1
Matthew Dawson	2
Juliet Fullwood	3
Alexander Hartley	4
Andrew Kiang	5

### **Group 1b**

Xinyao Li	1
Matthew Lockwood	2
Benjamin Mundow	3
Jiovanni Nunez	4
Daniel O'Brien	5
Robert Mossop	6

### **Group 2a**

Timothy Pickin	1
Ashley Smith	4
Kang Wang	6

### **Group 2b**

George Swallowell	1
Daniel Turner	2
Nizam Yasin	4
Mohammed Ali-Ramzan	5