

Internal Dose Assessment

5-Day
Short Course



This course has been developed for health physicists, Radiation Safety Officers, regulators, program auditors and anyone having responsibilities relating to personnel dose assessment. The course takes the student through the fundamentals of internal dosimetry, including historical and current dose models, to the analysis of actual intakes. The focus of this course is the utilization of both in vitro and in vivo bioassay results in the determination of intake and dose. A significant amount of time is devoted to calculations using actual intake scenarios. Practical applications of data and interpretation of bioassay results are stressed. Discussions include identifying the source term, collection of pertinent data, application of retention functions, determination of required bioassay technique sensitivities and identification of ana-

lytical parameters which impact the validity of in vivo and in vitro bioassay results. The exercises will include fission and activation products, transuranics from failed fuel and other sources, tritium, uranium, P-32 and other nuclides identified by the course participants. The student will become familiar with the use of current documents and references. These include but are not limited to: NUREG/CR-4884, ICRP-30, ICRP-26, EPA Report 520, ICRP-60, ICRP-66, ICRP-68, ICRP-100, RG 8.34, RG 8.9 and 10CFR20. Bioassay program development and Quality Assurance for bioassay programs will also be discussed. For on-site courses, methods specific to site procedures and software can be stressed or customization to site applications. The course has application to commercial power reactors, pharmaceutical manufacturers, regulatory agencies, university programs, government laboratories, private industry, fuel fabricators, any program involved in handling unsealed sources where there is a potential for intakes of radioactive materials. Students are encouraged to provide scenarios to the instructor prior to or during the course for review and discussion during the course.

This short course will help you....

- Understand what you are really signing when you put your signature on the "reviewed by" line on the in vivo or in vitro bioassay report or that dose assessment.
- Identify bioassay techniques and analysis sensitivities appropriate for the source term and bioassay counting/sampling schedule.
- Appropriately apply dose models, retention functions and dose coefficients to the estimation of intake and dose.
- Interpret real world bioassay data, including the analytical parameters which impact the validity of the data.
- Understand and apply NRC and/or DOE regulatory guidance in the estimation of dose.
- Design a bioassay program which is appropriate to the site, including bioassay methods, bioassay frequencies, quantifying potential missed dose, reporting requirements, identifying Data Quality Objectives for bioassay and Quality Assurance.

Onsite Training

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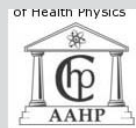


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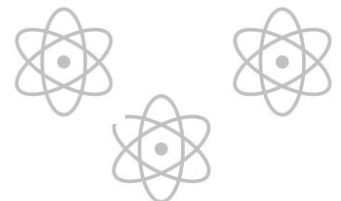
Contact TMS for further details.



THE AMERICAN ACADEMY OF HEALTH PHYSICS (AAHP) HAS AWARDED THIS COURSE 32 CONTINUING EDUCATION CREDITS.
ASSIGNED ID NUMBER: 2011-00-015

FOR FURTHER INFORMATION OR ASSISTANCE, PLEASE CONTACT:

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Topics

Fundamentals

- Pathways
- Dose

In Vivo and In Vitro Bioassay

- Types of whole body and lung counters
- Interpretation of whole body and lung counter results
- Types of In Vitro bioassay
- Interpretation of data from excretion bioassay analysis
- Spectral characteristics and interpretation
- In vitro analytical methods

Dose Models

- Historical development of dose models
- ICRP 30 and ICRP 60 methodology
- Review of ICRP 66 and 68 – new lung model, retention functions and dose coefficients
- Review NRC and DOE regulatory guidance, as applicable
- ICRP-100

Dose calculations using MIRD, NUREG-CR- 4884, ICRP-30, ICRP-68

- Intake Scenarios
- Intake Scenarios – student supplied

Bioassay programs

- Collection of pertinent data for actual and suspected intakes
- Quality Assurance
- Establishing Bioassay Detection Limits
- Bioassay Calibration Programs

See What Others Have Said About TMS Courses

“Very effective and practical presentation. The right amount of detail.”

“Excellent instructor. Good examples of situations from instructor’s experiences.”

“This course provided me with practical ideas that I can use on my day-to-day job.”

“Good presentation style. Worked well with class.”

“This was one of the best courses I have ever taken. The instructor was clear and precise. Case studies and job experiences shared with the class were excellent learning tools.”

“Very enjoyable. Helpful course.”

“I consider myself lucky to have been able to take this course.”

“I was very much impressed with the knowledge and quality of the instructor”