



## Internal Dose Assessment

July 9-13, 2018 ♦ Boston, MA

This 5-day 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, and determination of required bioassay technique sensitivities and identification of analytical parameters which impact the validity of in vivo and in vitro bioassay results.

The student will become familiar with the use of current documents and references. Bioassay program development and Quality Assurance for bioassay programs will also be discussed. Importantly, the course will consider application and use of perhaps the most powerful internal dosimetry software package currently available: The Integrated Modules for Bioassay Analyses (IMBA). Customization of the course to address site specific applications is optional for on-site courses, please contact TMS for further information.

The course has application to commercial power reactors, pharmaceutical manufacturers, regulatory agencies, university programs, government laboratories, private industry, fuel fabricators, in short; any program involved in handling dispersible radioactive materials where there is a potential for intakes. 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.

## Course Outline....

### Fundamentals

#### Dose Models

- ♦ Historical models and the central theme of internal dosimetry
- ♦ ICRP 26 and ICRP 60 guidance

#### The current internal dosimetry system: ICRP 30, 60, 66, 67, 78, 100 and the future!

- ♦ Structure of the models
- ♦ Application of the models
- ♦ Interpretation of Bioassay Measurements and application of intake retention functions
- ♦ Regulatory guidance

#### Integrated Modules for Bioassay Analysis (IMBA)<sub>1</sub>

- ♦ Examples, examples, examples

#### Bioassay programs

- ♦ Approaches to in vivo and vitro sampling and analysis
- ♦ Detection Limits and Sensitivity
- ♦ Bioassay Programs
- ♦ Calibrations
- ♦ QA/QC

<sup>1</sup>The Health Protection Agency of the United Kingdom (HPA) has committed to providing limited license software for participants during the class period with special pricing options thereafter.



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## Course Instructor

Dr. Richard Brey is currently a professor of Health Physics and interim dean at Idaho State University. He received his Ph.D. from Purdue University in Health Physics in 1994. He was the recipient of the Elda E. Anderson award in 2002. He has engaged in a wide variety of research including internal dosimetry; in which he has engaged in various collaborative efforts including the evaluation of historical exposures, evaluation of animal experimental data, and redefining/evaluating radioactive material translocation models. Since 1995 he has been the director of an environmental radioanalytical laboratory which performs approximately 1,200 sample analyses per quarter.

## Accommodations

This course will be held at Boston Newton Marriott. A block of rooms has been reserved at reduced rates for course participants. Please make your reservation directly with the hotel by calling 617-969-1000. Please specify that you are attending Technical Management Services' short course to receive the group rate.

The reserved block of rooms will be released 3 weeks prior to the course (at which time rooms will be offered on an availability basis only).

## 4 Easy Ways To Register....

1. Register online: [www.tmscourses.com](http://www.tmscourses.com)
2. Call TMS at (860) 738-2440
3. Fax your registration (860) 738-9322
4. Mail the attached form:  
TMS, P.O. Box 226, New Hartford, CT 06057

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Telephone \_\_\_\_\_ Fax \_\_\_\_\_  
Email \_\_\_\_\_  
Course Fee: \$1295.00

Bill my company

P.O. Number: \_\_\_\_\_

Charge Credit Card:

Visa  Mastercard  American Express

### Discounts:

\$50 discount if 2 or more people from the same company register  
... take an additional \$50 discount if payment is received by June 27th.