

MI205-W: R Programming for Pharmacometrics (2 CR)

MI205, formerly MI220, covers introductory through intermediate-level R programming topics with a focus on pharmacometric applications through lecture and hands-on lab sessions. Topics covered include basic R language constructs, data import/export, writing scripts and functions, manipulating data objects, traditional and lattice graphics, and basic statistical methods. This course also makes extensive use of the Mifuns package to teach and implement tasks such as population PK data set assembly, postprocessing of Maximum Likelihood and Bayesian modeling output, exploratory and report-quality graphics and tables, and automation of compute intensive methods, such as bootstrapping and posterior predictive check model qualification. Participants may apply the 2 credit hours from this course to the Metrum Institute Certificate Program in Pharmacometrics.

Instructors

Timothy Bergsma, Ph.D., Metrum Institute
William Knebel, Pharm.D., Ph.D., Metrum Institute
James Rogers, Ph.D., Metrum Institute

Prerequisites

None

Computer Hardware/Software

This course requires a Windows computer with a web browser. Students will be given access to a Metrum Institute web-application server for hands-on examples, including all required software. Details on how to access the program are provided at the start of the course.

2011 Schedule

TBD

Location

Live webcast

Fees

Regular registration: \$2000 USD / Academic & government registration: \$1000 USD

Course Topics

- Basic mechanics in R
- Basic plotting (lattice – xyplot, boxplot, etc.)
- Basic function writing
- Data summary (manipulation, function application – aggregate, apply's, statistical summaries)
- More advanced plotting (xyplot with embedded functions, use of summaries from Week 4 in plotting)
- Data assembly – merge, forback, random number generation, putting together a data set
- Modeling in R (lm, nlme, etc.)
- Modeling outside of R (generating NONMEM[®] input, reading NONMEM[®] and WinBUGS output, etc.)
- Advanced function writing
- Advanced exercises and hands-on examples
- Advanced data manipulation – reshape, cast, etc.
- Advanced graphics – presentation of modeling results from bootstrap, predictive check, WinBUGS, extending lattice grid