

# Ghement Statistical Consulting Company

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## R Workshop - October 1 and 2, 2009

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We are pleased to announce the workshop "**An Introduction to the Statistical Software Package R**" on October 1 and 2, 2009. On both days, the workshop will take place between 8:30am and 4:30pm at the British Columbia Institute of Technology (BCIT), 555 Seymour Street, Vancouver, B.C. (This workshop is not affiliated with BCIT.)

### What is R?

R is a free, powerful, open source software package with extensive statistical computing and graphics capabilities, which can be used to explore and analyze data. R shares many of its strong points with its commercial competitor S-PLUS. In addition to providing a comprehensive suite of conventional statistical tools, R has many freely available add-in packages which can be used to carry out more specialized statistical tasks. More information on R can be found on the website [www.r-project.org](http://www.r-project.org).

### Workshop Description

Day 1 on October 1st will introduce you to the R environment and programming language. You will learn the fundamental R commands necessary for data storage, manipulation and summarization. You will get a jumpstart in R programming and develop a solid foundation for using R to manage your data and produce descriptive statistics.

Day 2 on October 2nd will show you how to use R to visualize and analyze data. You will learn appropriate R commands for constructing, customizing and saving simple and complex statistical graphs. You will perform a variety of basic statistical analyses (e.g., t-tests, simple linear regression analyses, analyses of variance) and become familiar with the interpretation of the corresponding R output. You will build a strong foundation for using R to solve your statistical analyses problems.

You can choose to attend both days or either day.

### Benefits to Participants

After Day 1, you will be able to:

- Install and run R in a Windows-based environment.
- Manage and customize the R working environment.
- Access R help and documentation.
- Install new R functionality through add-on packages.
- Communicate with R via the command-line and via scripts.
- Transfer data from other software applications to R and vice versa.
- Store data in R using a variety of data structures.
- Prepare data stored in R for use in statistical analyses.
- Produce numerical summaries of data using R.
- Write customized R functions to automate repetitive data-processing tasks.
- Use helpful tips for efficient programming in R.

After Day 2, you will be able to:

- Construct basic statistical graphs.
- Create advanced statistical graphs using the lattice package.
- Customize and save graphical output produced by R.
- Perform a variety of basic statistical procedures, including t-tests, simple linear regression analyses and analyses of variance (ANOVA), and interpret the resulting R output.
- Assess the adequacy of these statistical procedures through appropriate diagnostics and adopt remedial actions where warranted.

## Workshop Outline

### Day 1

#### Morning

- Overview of R.
- Data Types.
- Programming Essentials.

#### Afternoon

- Data Import/Export.
- Data Management.
- Data Summarization.

### Day 2

#### Morning

- Basic Graphs.
- Advanced Graphs.
- Graph Customization and Saving.

#### Afternoon

- T-Tests.
- Simple Linear Regression.
- ANOVA.

## Workshop Format

This workshop is limited to 18 participants and consists of a series of short lectures and demonstrations followed by hands-on, interactive sessions for the participants. Each participant is provided with:

- A bound copy of the Workshop Notes;
- A CD-ROM containing all examples and exercises used during the workshop;
- 30 days of free workshop-related technical support following the workshop.

## Workshop Leader

The workshop is led by Dr. Isabella Ghement. Isabella obtained her Ph.D. in Statistics from the University of British Columbia (UBC) in 2005. Isabella has presented sold-out workshops on the statistical software package R to graduate students, researchers and others involved in cancer research, environmental and ecological research, biostatistics and bioinformatics. She also lectures part-time on basic and advanced statistics at the Sauder School of Business at UBC. Isabella has co-authored the publications "Seasonal Confounding and Residual Correlation in Analyses of Health Effects of Air Pollution" (*Environmetrics*, Vol. 18, Issue 4, June 2007, pp. 375-394) and "Robust estimation of error scale in nonparametric regression models" (*Journal of Statistical Planning and Inference*, Vol. 138, Issue 10, October 2008, pp. 3200-3216).

## Prerequisites

### Day 1

Participants should have some basic knowledge of descriptive statistics and familiarity with the Windows operating system.

### Day 2

Participants should have some basic knowledge of R, familiarity with the Windows operating system and an understanding of basic statistical procedures (e.g., t-tests, simple linear regression, analysis of variance).

Participants should bring a laptop computer pre-installed with the free R software. Detailed instructions for downloading and installing R are available on our website at [www.ghement.ca/Rinstructions.html](http://www.ghement.ca/Rinstructions.html).

## Location

British Columbia Institute of Technology (BCIT), 555 Seymour Street, Vancouver, B.C.  
(Workshop not affiliated with BCIT)

## Dates and Times

*Dates:* October 1 and 2, 2009.

*Registration:* On both days, workshop registration begins at 8:30 a.m.

*Times:* The workshop starts at 9:00 a.m. and finishes at 4:30 p.m. on each day.

## Cost

The attendance fee for each day of the workshop is \$195.00 plus GST per participant and includes a bound copy of the Workshop Notes, a CD-ROM containing all workshop examples and exercises and 30 days of free workshop-related technical support following the workshop. The attendance fee also includes morning and afternoon coffee, tea and snacks.

If you would like us to provide a computer for you to use during the workshop please add \$100.00 plus GST per participant per day.

## Discounts

Participants who are not part of a group and attend both days receive a 10% discount.

Groups of 3, 4 or 5 from the same organization receive a 10% discount.

Groups of 6 or more from the same organization receive a 15% discount.

Groups attending both days receive an additional 5% discount.

## Cancellation Policy

- 100% refund if written notification of cancellation is received by September 22, 2009. Please note that no refunds will be issued after this date.
- In the event you become unable to attend after the September 22, 2009 refund deadline, you may delegate a substitute attendee. Please notify us of any changes as soon as possible via e-mail at [info@ghement.ca](mailto:info@ghement.ca) or telephone at 604-767-1250 or fax at 604-270-3922.

## Registration

- Places are limited to 18 participants per day so we encourage you to register early. The registration deadline is September 22, 2009.
- To reserve your place, please follow the instructions below:
  1. Pre-register by e-mailing us at [info@ghement.ca](mailto:info@ghement.ca), or telephone us at 604-767-1250, or fax us at 604-270-3922.
  2. Complete the [Registration Form](#).
  3. E-mail or fax the completed Registration Form to us, and mail your cheque payable to Ghement Statistical Consulting Company; or request an invoice where indicated on the Registration Form.
- Your reservation will be confirmed via e-mail by September 24, 2009. Please do not make any travel arrangements until your reservation has been confirmed by us in writing.
- A registration receipt will be issued to you after the workshop.

## Registration Form

Please [click here](#) to download the registration form. For additional attendees, please duplicate the registration form.

[http://www.ghement.ca/RworkshopOct1and2\\_2009.html](http://www.ghement.ca/RworkshopOct1and2_2009.html)