

# Syllabus for ABT 775 Tools for Data Analysis

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**NOTE:** This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

## Course Description

This course introduces methods of data analysis and their implementation using R and RStudio, with applications in biotechnology, business, and research. Students will explore methods of data wrangling, visualization, simulation, and modelling, with an emphasis on machine learning. Prior knowledge of R and statistical analysis are assumed.

## Prerequisite(s)

ABT 705, ABT 715, ABT 720

## Course Outcomes

Upon completing this course, you will be able to do the following:

- Evaluate and apply methods of data analysis that are commonly used in biotechnology, business, and research;
- Explain the rationale behind these methods;
- Select an appropriate method of data analysis for a given problem;
- Implement data analysis procedures using R and RStudio;
- Communicate statistical findings in biotechnology research to stakeholders.

## Course Requirements/Components

### Take-home Exams

You will complete take-home exams to assess your comprehension of materials from given modules.

### Data Analysis Proficiency Challenges

These are a series of assignments that give you the opportunity to show your competency in using various data analysis programs with given data sets.

### Discussions

Discussions will allow you to contemplate and interact with your peers regarding the application of biotechnology with data analysis.

### Reflective Assessments

These will give you the opportunity to take the time to reflection upon what you've learned from previous lessons or modules.

## Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	93% - 100%
A-	90% - 92.9%
B+	86% - 89.9%
B	83% - 85.9%
B-	80% - 82.9%
C+	76% - 79.9%
C	73% - 75.9%
C-	70% - 72.9%
F	0 - 69.9%

Assignment	Points
Two take-home midterms (2 x 100 pts)	200
Comprehensive Final	200
Data Analysis Proficiency Challenges (25 x 10 pts)	250
Online Discussions (5 x 10 pts)	50
Reflective Assessments (8 x 10 pts)	80
<b>Total Points</b>	<b>780</b>