

# Syllabus for ABT720

## Experimental Design and Analysis in Biotechnology

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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

Principles of descriptive and inferential statistics with applications in biotechnology including experimental design, quantitative data analysis, and bioinformatic evaluation of complex molecular and biological data sets.

### Prerequisite(s)

None.

### Course Outcomes

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

- Evaluate and apply experimental and statistical methods that are commonly used in biotechnology research;
- Explain the rationale behind experimental and statistical procedures used in biotechnology research;
- Select an appropriate experimental and statistical method for a given research question;
- Implement statistical procedures using software, especially R and RStudio;
- Implement bioinformatic methods using a set of software tools; and
- Communicate statistical findings in biotechnology research to stakeholders

### Course Requirements/Components

- All assessments, exercises, and assignments will be posted to the course webpage, in CANVAS, and will be accompanied by due dates and times.
- Assignments will be completed either individually or in small groups (this will be clarified when each in class assignment is posted to the course webpage).
- Completed assessments, exercises, and assignments will be turned in to the appropriate drop-boxes on CANVAS.
- It is expected that work will be completed prior to the posted deadlines.
- A late penalty will be assessed for work completed after the due date (initially 20%, but increasing by 20% per day from the due date and time).

- Make-up assignments will be given only with proper written justification and prior consent of the instructor.
- Careful review of all assigned videos is required.
- Thoughtful completion of all assigned reading is required.

## 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
Online topical discussions (10 x 5pts each)	50
Exercise Sets (16 x 10 pts each)	160
Short Essay Responses (2 x 40 pts each)	80
Critical Commentaries (2 x 40 pts each)	80
Software Practicals (6 x 40)	240
Unit I to V Multiple-choice In-home Exams (5 x 50)	250
Unit VI In-home Essay Exam	100
<b>Total Points</b>	<b>880</b>