Stat 350 (Web-based) Summer 2015
Statistics with Applications in the Biological Sciences

Syllabus

Instructor:	Yi Huang Associate Professor, Dept. of Math and Stat, UMBC **Email**: yihuang@umbc.edu **Office**: 409 Math/ Psychology **Phone**: 410-455-2422
Lectures & Discussions	**Discussion/Lecture/Evaluation**: All lecture materials are online under Blackboard course website. MW, 10:00am – 10:50pm (Sherman Hall). **Office Hours**: Mon 9:30am-10:00am & 11:00am – 11:30am, MP409 Announcement, lectures notes, homework and solutions, and many supplementary materials are posted under Blackboard course website to be viewed WEEKLY. Students are expected to go over the material online and to be prepared before coming to discussions. Face-to-face discussions are **mandatory**. All solutions for quizzes, homework, practice exams, and midterm exams will be reviewed in these sessions. Make sure you come every week, and class participation counts towards final course grading (random attendance sheets will be collected for extra credits). Blackboard course website http://blackboard.umbc.edu • **Course Syllabus**: course policy, weekly teaching / learning schedule, important timeline for homework, quiz, and exams. • **Course Documentation**: Online notes for lectures and reviews. • **Assignment & project:** homework and solution, projects.
Teaching Assistants & Evaluations	**TA**: Ningbo Jian **Email:** njian1@umbc.edu **Office hour**: Wed (9:00am -10:00am), MP012A (underground floor of MP building). Mr. Jian will proctor all course evaluation sessions. Homework is assigned online and due to TA at the beginning of each evaluation/test session. All projects will be assigned and collected online.
Online	**Online Discussion Board**: http://blackboard.umbc.edu

Discussion Board	Three forums have been set up in course website under Blackboard to stimulate interacts among students and learning groups. • Course policies - questions regarding general course policies, registration and grading rules. • Concepts - questions about important statistical concepts found in textbook, lecture notes, exams. • Exercises- any questions or concept confusion related to homework, projects, quiz, and midterms. **Students actively responding to discussion board posts will be counted towards the extra credits for course participation!** TA and instructor will monitor the questions occasionally.
Textbook:	**Required textbook**: Statistics for the Life Sciences, 4th edition, Samuels and Witmer • This new textbook is required providing all course materials and homework. Chapters 1 -12 are covered in this course, and most optional sections will not be covered. **Reference book (optional)**: Statistics with Microsoft Excel (5th Edition)
Software & Calculator:	Microsoft Excel will be used for course projects. Excel is available in campus computer labs such as ENGR 021 and in the library. Calculators providing basic functions such as (+, -, *, /), logarithms and exponents, simple memory and recall, and factorial key may be used on quizzes and exams. Graphing calculators and other fancy devices will be strongly discouraged.
Course Objectives	This is an introductory level course on statistical concepts and their application to the biological sciences. Upon completion of the course, students should be able to carry out basic techniques to analyze and understand real life data. This will include exploratory data analysis, use of random variables and distributions, hypothesis testing, linear regression models, and analysis of variance.
Homework	There will be **five homework** assignments to be submitted at the beginning of each evaluation/test session. Homework problems will be assigned for each chapter in the online lecture material and online homework website. The TA will grade the homework based on completeness. Homework **solutions** will be posted at 5 PM (one night) **before** homework due time. It is very important for you to work and finish carefully with all homework problems before checking the solutions. Some of the homework problems or similar version will be chosen as in-class quiz problems. Make sure to correct the mistakes you make in homework before turning it in (after checking the solutions). **Late homework assignments WILL NOT be accepted.**
Projects	There will be **two projects** using Microsoft Excel. The projects will

require you to apply statistical concepts to a real data setting. Excel help files will be posted online. The 3rd project is optional for extra credits.

Quizzes:

There will be **five in-class quizzes** (closed book, closed notes) and **five online quizzes** (open book and notes, work independently).

- Online quizzes will be based on the lecture material which needs to be reviewed before coming to the discussion session.
  - Online quizzes are to be completed by midnight
- In-class quizzes will be based on problems similar to the homework problems. Since the in-class quiz with lowest grade will be dropped for overall course grading, **NO makeups** quizzes will be given.
  - You may bring calculator, tables, and one paper of **formula sheet (double-sided**) to exams and in-class quizzes.

Exams

There will be a **midterm** and a **final exam**. The final exam will be comprehensive (chap. 1- 12), closed book and closed notes. Makeup exams will be given only under extreme emergencies since the summer semester is very short. Documentation of your emergency will be required. Other absences will receive a zero for the exam. Partial credit for exams will be considered. Concerns about the correct grading of an exam must be made within a week after the exam is returned.

Course Grade Based on:

- **10%** - four homework assignments at **2.5% each** with lowest score dropped
- **10%** - four online quizzes at **2.5% each** with lowest score dropped
- **20%** - five in-class quizzes, lowest score dropped, remaining four at **5% each.**
- **10%** - two projects at **5% each.**
- **20%** - midterm
- **30%** - final
- **Extra credits:**
  - **4% extra**– for completion of 3rd project correctly.
  - **2% extra** - for class participation, including Monday discussion sessions, responding online discussion board posts actively, and random attending sheets on Mon discussion sessions.
  - **Multiple extra points** - finish the optional questions listed in quiz, midterms, and final exam.
- Tentative grading scale: 90%-100%: A 80%-89%: B 70%-79%: C 60%-69%: D <60%: F

Academic Integrity:
By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. **Any suspicious academic misconduct will be reported** to university committee for further investigation, which **could result in disciplinary action** that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory.

Cheating of any kind will not be tolerated. It is especially important that you avoid any appearance of cheating.

- Try to sit away from other students during tests and quizzes.
- Make sure all your notes are zipped up in your bag (i.e. not visible).
- Cover completed questions with your hand if possible.
- Do not use any unapproved devices during quizzes or tests.
- Use the restroom before a test or quiz, as you will not be allowed to leave during the testing period.
- Make sure all cell phones and devices are put away (not visible) and set to silent mode.
- Have your desk cleared and belongings put away before the test is handed out.
- Once you turn in your test or quiz, you may not see it again or change any answers

Acknowledgement:
I want to thank Dr. Michelle Danaher for sharing her previous summer teaching materials, much of which was used here in this course. Furthermore, I thank Drs. Mathangi Gopalakrishnan and Andrew Raim for sharing their winter teaching materials.