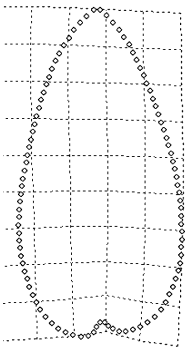
BIOL 240 —Biometry (4 credits)



Alexey Shipunov

Spring 2014

SYLLABUS

Class Dates : January 15 to May 13, 2014

Course Description :

Course will cover introductory statistic concepts in a form designed specifically for biology majors, its goal is to strengthen Biology and Chemistry students with statistical knowledge and abilities. It is a practical, software-based examination of the concepts of sampling, hypotheses testing (non-parametric and parametric), descriptive statistics, contingency, correlation, analysis of variation, linear models and basic multivariate techniques. Only biological, real-world data will be used. Course will concentrate on underlying principles, applicability and practical use of methods covered. R statistical environment will be used as a main software tool.

Instructor : Dr. Alexey Shipunov

Office : Moore 229

Office Hours : Mondays, Wednesdays and Fridays, 10 a.m. to 11:30 a.m.

Phone : 858-3116

E-mail : `alexey.shipunov@minotstateu.edu`

Lectures : Wednesdays and Fridays, 11:35 a.m. to 12:50 a.m., Moore 211

Textbook : Shipunov A., and others. Visual statistics. Use R!. DMK Press, 2012. [In Russian]. The book will be translated in to English due course.

Web site : `http://ashipunov.info/shipunov/school/biol_330/`

Laboratories : Mondays, 1 p.m. to 4 p.m., Moore 211

Grading :

Four equal exams are given during the semester. Only the **three best exams** contribute to the final grade. Missed exams count zero points. There are **no make-up** exams.

There are five legitimate reasons for absence from labs: (1) emergency situations, (2) attested medical conditions, (3) military duty, (4) participation in MSU sports events, and (5) dependent sick leave. Absence from exams or laboratories needs to be announced to the instructor in advance. I strongly recommend to attend lectures regularly since lectures is the only source of your practical skills.

Receiving zero points for more than one laboratory results in a failed course. Grading of laboratories is based on reports. Written reports are prepared and finished during laboratory sessions and sent via e-mail to the instructor.

Every lecture will have a computer-based, practical part. In addition, at the end of every lecture I will give one short test question to answer.

A total of 600 points can be earned and are distributed as follows (grading points may vary):

Lecture tests : ≤ 60 points (1–3 points per question)

Three best exams : ≤ 300 points

Laboratories : ≤ 240 points (20 points per lab, 12 labs)

Letter Grades : A $\geq$ 90%, B $\geq$ 80%, C $\geq$ 70% D $\geq$ 60%, F $<$ 60%.

Academic Honesty : Honesty and integrity are central to academic life at Minot State University. Cheating may affect the student in accordance with the grading policy: a **minimum** of one letter grade will be deducted from the grade for academic dishonesty / plagiarism.

Disability Needs : In coordination with Disability Support services, reasonable accommodations will be provided for qualified students with disabilities. Please contact the instructor during the first week of class to make arrangements. Additional information is available from MSU Disability Support Services.

Tentative Course Schedule (subject to change):

Weeks 1, 2	Jan 15, 22	Data and data processing; no lab
Week 3	Jan 27, 29	How to process data: R basics; Lab 1
Week 4	Feb 3, 5	R graphics; Lab 2
"		1st exam: Feb 10
Weeks 5, 6	Feb 12, 19	Types of data; Lab 3
Week 7	Feb 24, 26	One-dimensional data, descriptive statistics; Lab 4
Week 8	Mar 3, 5	Hypotheses testing; Lab 6
"		2nd exam: Mar 10
Week 9	Mar 12	Two samples; no lab
		Week 10: Spring break
Week 11	Mar 24, 26	Contingency tables; Lab 7
Week 12	Mar 31, Apr 2	Correlation; Lab 8
Week 13	Apr 7, 9	Regression; Lab 9
"		3rd exam: Apr 14
Week 14	Apr 16	ANOVA; Lab 10
Week 15	Apr 23	ANOVA; no lab
Week 16	Apr 28, 30	Data mining; Lab 11
Week 17	May 5, 7	Data mining; Lab 12
Week 18		4th exam: Tuesday May 13, 12:00–12:50 p.m.