

## STATISTICS 200 - 102: SUMMER SESSION 2017 ELEMENTARY STATISTICS

### Syllabus

#### COURSE MEETING TIMES & LOCATIONS:

- **Lectures:** Monday, Wednesday & Friday, 9:35-10:50am,  
**118 Thomas Building**
- **Labs:** Tuesday & Thursday, 9:35-10:50am  
**111 Boucke Building**
- **Semester Dates:** May 15 – June 23, with final exam on Monday, June 26

#### OFFICE HOURS:

- **Shared TA Office Hours (all Summer 1 Stat 200 sections):**
  - Monday: 4pm – 6pm, 320 Thomas
  - Tuesday: 4pm – 6pm, 320 Thomas
  - Wednesday: 4pm – 6pm, 320 Thomas
  - Thursday: 4pm – 6pm, 320 Thomas
- **Instructor Office Hours:** Please email for an appointment

#### COURSE WEB SITE

- **Canvas**

#### INSTRUCTOR:

- **Name:** Ann Johnston
- **Office Location:** 333 Thomas Building
- **Email:** abj5162@psu.edu

#### TA:

- **Name:** Jia Wang
- **Office Location:** 301 Thomas Building
- **Email:** jzw88@psu.edu

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#### COURSE OBJECTIVE

- **STUDENTS WILL LEAVE STAT 200:**
  - Having developed a familiarity with statistical language
  - Capable of elementary reasoning about data & its visualizations
  - Equipped to recognize the red-flags of unjustified scientific claims

#### COURSE FORMAT

- **4 credit course in a three-credit time frame;**
- **Each week = 2.5 weeks of regular semester**

#### REQUIRED MATERIALS:

**Textbook:** *Mind on Statistics*, 5<sup>th</sup> Edition, by Jessica Utts & Robert Heckard

- **a few copies available in the Physical and Mathematical Sciences (PAMS) & Pattee Library**
- textbook options include:
  - 3-hole punch loose leaf (LL),
  - hard cover,
  - electronic version.

No JMP code needed.

Student solution manual is **not** required. .

Instructor will only work from the 5<sup>th</sup> edition. No International Version.

- can buy/**rent** textbook directly from the publisher by using this website:

<https://www.cengagebrain.com/shop/ProductDisplay?langId=-1&storeId=10151&catalogId=10057&productId=669929>

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### ACADEMIC INTEGRITY:

Academic integrity includes a commitment to not engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the Penn State community and compromise the worth of work completed by others. This course will follow the Eberly College of Science policy at <http://science.psu.edu/current-students/Integrity/Policy.html>

### DISABILITY ACCESS STATEMENT

Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Student Disability Resources (SDR) at [814-863-1807](tel:814-863-1807) (V/TTY), at 116 Boucke. For further information regarding SDR, please visit the web site at:

<http://equity.psu.edu/student-disability-resources>

**You must contact me ASAP (course after contacting the people at SDR) about any disability-related accommodations for this course.**

### STATEMENT OF NONDISCRIMINATION

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. The Pennsylvania State University does not discriminate against any person because of age, ancestry, color, disability or handicap, national origin, race,

### PENN STATE VALUES:

Below are the six values for which everyone in the Penn State community should adhere to when making choices and decisions:

1. **Integrity:** We act with integrity and honesty in accordance with the highest academic, professional, and ethical standards.
  2. **Respect:** We respect and honor the dignity of each person, embrace civil discourse, and foster a diverse and inclusive community.
  3. **Responsibility:** We act responsibly, and we are accountable for our decisions, actions, and their consequences.
  4. **Discovery:** We seek and create new knowledge and understanding, and foster creativity and innovation, for the benefit of our communities, society, and the environment.
  5. **Excellence:** We strive for excellence in all our endeavors as individuals, an institution, and a leader in higher education.
  6. **Community:** We work together for the betterment of our University, the communities we serve, and the world.
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### COURSE ASSESSMENTS:

**Mitem Exams: (3 exams will be given; no drops) – CANNOT take early no matter what the reason**

- some exam questions could come from homework/extra problems listed from the textbook
- will include 30 multiple choice questions (60 minutes)

- **Testing Center (104 Pollock)** on scheduled date & time (**sign up in advance**)
  - **schedule appointment outside of class time**
  - **Testing Center open 9 AM – 3 PM**
  - provided a piece of scratch paper at exam (bring your own pencil/pen) – some helpful information is embedded in exam document (will be available ahead, for reference) – **nothing else allowed** such as a calculator, cellphone, notes, Bluetooth watch, etc.
  - must follow the Testing Center policies – failure to do so will result in a “0” for the first offence - evidence can come from **witnesses, security cameras** and **computer records**

**Final Exam:**

- **selectively** comprehensive (40 questions) / (larger portion from common test bank)
- **must take on June 26 (no matter what is the reason)**
- **Testing Center (104 Pollock)** on scheduled date & time (**sign up in advance**)
  - **Testing Center open 9 AM – 3 PM**
  - provided a piece of scratch paper at exam (bring your own pencil/pen) – some helpful information is embedded in exam document (will be available ahead, for reference) – **nothing else allowed** such as a calculator, cellphone, notes, Bluetooth watch, etc.
  - must follow the Testing Center policies – failure to do so will result in a “0” for the first offence - evidence can come from **witnesses, security cameras** and **computer records**

**Exams Make-ups:**

- **Only** allowed if you have a University-related excuse or a religious conflict. You must talk to the instructor in person and provide **documentation** with appropriate letterhead and signatures, **prior to the exam** for arrangements. – Exams will never be given early.
- Illness will be dealt with on an individual basis. You must contact the instructor by the exam day about any unexpected illnesses, etc.

**Lab Activity & Homework Quiz Make-Ups:**

- Class will be held unless the university shut downs
- **No make-ups under most circumstances because the course is loaded with drops**  
**IMPORTANT NOTE:**  
Everyone must use **one drop (no exceptions)** when sick, have surgery, attend funerals, at court, family issues and events, personal problems, missed the bus, bad weather, transportation/car issues, alarm on cell phone not working, work-related issues, etc.
- **It is NOT necessary to email about missing. Canvas will include the drops in the final calculated grade.**
- For **extended illness/problems** please contact me, and we can try to figure out an arrangement.

**TABLE 1:**

Requirement	Pts/ Effort	Overall Pts	Overall Percent (%)
<b>Midterm Exams:</b> (60 minutes) <b>Exam 1:</b> Thurs May 25 (at Pollock Testing Center) <b>Exam 2:</b> Thurs June 8 (at Pollock Testing Center) <b>Exam 3:</b> Thurs June 22 (at Pollock Testing Center)	100	300	30%
<b>Lab Activity Quizzes (LAQ)*</b> (best 10 of 12 kept)	20	200	20%
<b>In-Class Quizzes:</b> Fri May 19, Fri June 2, Fri June 16	25	75	7.5%
<b>Homework (HW)</b> (best 8 of 9 kept)	15	120	12%
<b>Instructor Discretion:</b> Weekly Engagement Activities (best 5 of 6 kept)	11	55	5.5%
<b>Final:</b> (90 minutes) <b>Mon June 26</b> (at Pollock Testing Center) <b>-- must be taken on this date --</b>	250	250	25%
<b>Total</b>		<b>1000</b>	<b>100%</b>

## GRADES:

- Grades are **earned** based on academic performance
- Grades are Reported in the Canvas GradeBook
- Point ranges for final grades are found in **Table 2**. Grade boundaries must be set so that student performances can be fairly evaluated.
  - No individual extra credit will be allowed either during or after the semester is over.
  - **Do NOT expect the grades to be curved** (also cannot negotiate your grade or missed assignments at the end of or after the semester is over), and they **will not be rounded**. For example, a point total of 929.99 will be an A- grade, and 699.99 will be a D grade.

**TABLE 2: POINT BOUNDARIES FOR FINAL GRADES (based on 1000 points)**

Final Grade	Minimum Points Needed*
A	930 points
A-	900 points
B+	870 points
B	830 points
B-	800 points
C+	770 points
C	700 points
D	600 points
F	0 points

## SOME HELPFUL TIPS:

- Many students do not understand how to properly take notes in class. A useful resource is: <https://dus.psu.edu/academicsuccess/studyskills.html>

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- This course requires both the acquisition of basic knowledge and **conceptual understanding** in order to successfully solve challenging problems. Unfortunately, memorization only allows for the acquisition of basic knowledge at best.

*Most students don't learn all the course material the first time they are exposed to it. So you can expect to need to do several rounds of studying, trying, and evaluation to master such material. Practice helps to build confidence.*

For enduring (deep) learning the three key components are: **productive struggle, explicit connections, and deliberate practice**

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- Take advantage of course resources and Office Hours—we are here to help!
- Studies have shown that multitasking is detrimental to learning. When multitasking, it often takes longer and leads to making mistakes.
- **The four top reasons students do poorly in this class:**
  1. don't come to or pay attention during class
  2. don't seek help when having problems
  3. don't complete the HW, and
  4. become too dependent on services such as Lion Tutors/Nittany Notes, etc.

**TEXTBOOK COVERAGE:****TABLE 3: CHAPTERS COVERED & CORRESPONDING TOPICS\***

<b>Chapters</b>	<b>Topics</b>
<b>Chapter 1 (all sections)</b>	Overview of Statistics, Population, Sample, & and certain Statistical Principles
<b>Chapter 2 (all sections)</b>	Descriptive Methods: (one quantitative) & (one categorical) variable
<b>Chapter 3: (all sections)</b>	Descriptive Methods: Regression & Correlation (get s from Chapter 14)
<b>Chapter 4: Sections 4.1 – 4.4</b>	Chi-square Procedure: 2X2 tables (relative risk, increased risk, odds)
<b>Chapter 5: Sections 5.1-5.3</b>	Margin of error, polls, confidence interval, simple random sample
<b>Chapter 6: Sections 6.1-6.3</b>	Design of “Randomized Experiments” & “Observational Studies”
<b>Chapter 8: Sections 8.1- 8.7</b>	Random variables, Binomial distribution, & Normal distribution
<b>Chapter 9: Sections 9.1- 9.4, 9.6, 9.9-9.10</b>	Sampling Distributions, Central Limit Theorem
<b>Chapter 10: (all sections)</b>	Confidence Intervals: Population Proportion(s)
<b>Chapter 11: Sections 11.1 – 11.5</b>	Confidence Intervals: Population Mean(s)
<b>Chapter 12: (all sections)</b>	Hypothesis Tests: Population Proportion(s)
<b>Chapter 13: Sections 13.1 – 13.6</b>	Hypotheses Tests: Population Mean(s)
<b>Chapter 14: Sections 14.3 (if time allows)</b>	Hypothesis tests: Population Correlation & Population Slope tests
<b>Chapter 15: Sections 15.1 &amp; 15.2 (if time allows)</b>	Chi-square Tests: larger than 2X2 tables

\*Not all chapters will be covered in the order found in the textbook.