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# Syllabus: STATISTICS 825

*Sample Surveys*

*Section 001*

*Fall 2019*

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Instructor: P.K. Pathak, C402 Wells Hall, 353 - 8900, [pathakp@stt.msu.edu](mailto:pathakp@stt.msu.edu)

Lecture: MWF 3:00p – 3:50p, A322 (WH)

Office Hours: MW 12:30p – 2:00p (C402 WH) and by appointment

Email: [pathakp@stt.msu.edu](mailto:pathakp@stt.msu.edu)

Websites: <http://msu.lon-capa.org> and <https://stt.natsci.msu.edu/academics/class-pages>  
will provide course information. If required, log in with your MSU login name and password.

Prerequisite: STT 422, 442, 862 or approval of the Department.

Recommended Textbooks: Subject matter of the course will be based on selected material from several textbooks, e.g.

*An Introduction to Sampling Theory and Practice*, by P. K. Pathak

<https://www.stt.msu.edu/users/pathakp/book0-5/>

*Sampling*, 3rd Edition, by S. K. Thompson

*Sampling Techniques*, 3rd Edition, by W. G. Cochran

*Sample Survey Theory*, by Des Raj, with Promod Chandhok

*Sampling of Populations: Methods and Applications*, 4th Edition, by Paul S. Levy and Stanley Lemeshow

and others.

**Course Description:** This course will provide a brief account of sampling theory and its applications. The topics covered will include: history of sample surveys, advantages and disadvantages of sample surveys as compared to complete enumeration (census), applications of key statistical concepts such as unbiasedness, consistency, variance, mean squared error, point estimation, confidence intervals, tests of hypothesis, asymptotic normality, relative efficiency, resampling methods to sampling schemes commonly encountered in practice, e.g. simple random sampling with and without replacement, sampling with unequal probabilities (PPS), stratified sampling, systematic sampling, cluster sampling, multi-stage sampling and general sampling schemes etc.

### Homework and Examinations:

Homework will be assigned online using LON-CAPA. There will be six homework assignments during the term. Each home work will open on a specified date and time and will also automatically close at a preassigned day and time. PLEASE DO NOT WAIT TILL THE LAST DAY TO WORK ON THE HOMEWORK PROBLEMS. THE LOWEST HOMEWORK WILL BE DROPPED. LATE HOMEWORK WILL NOT BE ACCEPTED.

There will be two midterm exams and one comprehensive final exam. Here is their schedule:

- Exam 1 (50 points): Monday, October 7
- Exam 2 (50 points): Monday, November 18
- Final Exam (100 points): **Monday, Dec. 9, 3:00p – 5:00p**

**Classwork:** Classwork will be assigned during lecture hours, consisting of two parts “question of the day (QOD)” and “exercise of the day (XOD)”. QODs close at the end of the lecture period while XODs, by 10:00 pm the day they are assigned. Two QODs and two XODs with lowest scores will be dropped. PLEASE DO NOT WAIT TILL THE LAST MINUTE TO WORK ON THESE PROBLEMS. THERE WILL IN GENERAL BE NO EXTENSION.

**Attendance:** You are expected to attend all meetings of the class. If you must miss a class, plan to get notes for that day from a classmate.

**Note:** All exams including a comprehensive final exam are are “closed book” and

“closed notes”. The exams will contain questions concerning text material and problems, classroom example and discussions. Further information on these matters, if necessary, will be announced in class and posted on the class website. Missing an exam without a valid excuse presented to the instructor will result in a score of 0 points. Persons who must miss an exam because of medical or family emergency or other exceptional circumstances should present a valid excuse to Dr. Pathak, in advance of the examination whenever possible. All students are expected to adhere to the University’s policy concerning academic integrity. It is covered in the Spartan Life booklet under General Student Regulations. For more information about this, please consult the handbook or visit the Spartan Life website at <http://www.vps.msu.edu/SpLife/>

**Evaluation:** Points are earned through five best out of six homeworks (50 points), two midterm examinations (100 points), a comprehensive final examination (100 points), and class work (50 points).

Points Toward Grade	
Source	Points
Homework (5 Best)	50
Two Midterm Exams	100
Class Work	50
Final Exam	100
<b>Total</b>	<b>300</b>

Your total number of points will be converted into a percentage and your grade will be determined by the following grading scale:

90 – 100%: 4.0	85 – 89%: 3.5	79 – 84%: 3.0	73 – 78%: 2.5
65 – 72%: 2.0	60 – 64%: 1.5	55 – 59%: 1.0	0 – 54%: 0

**Important Dates:** In addition to the exam dates, you should be aware of all the University mandated dates related to courses. These are currently available at: <http://www.reg.msu.edu/R0Info/Calendar/Academic.aspx>

Here are a few of the more important dates:

- Wednesday, 8/28: Classes begin, late enrollment fee begins.
- Monday, 9/02: Labor Day Holiday, University Closed.
- Monday, 9/23 (8:00 pm): End of Tuition Refund Period.
- Wednesday, 10/16: Mid-semester, last day to drop with no grade reported.
- 11/28-29: Thu-Fri, University Closed.
- Friday, 12/06: Classes end
- Monday, Dec. 9, 3:00 pm – 5:00 pm: Final Exam, Location TBA.

### ADA:

To arrange for accomodation, a student with special need should contact the Resource Center for Persons with Disabilities.

Phone:353-9642, Website: <http://www.rcpd.msu.edu>.

### Disclaimer:

The instructor reserves the right to make any changes he considers academically advisable. Changes will be announced in class and posted on the class website. It is your responsibility to keep up with any changed policies.

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