

Math 483, Section 1, Fall 2023. 1:00-1:50 MWThF Neckers 156

Instructor: David Olive *Office:* Neckers 261 (wing A) *Phone:* (618)-453-6566

Text: *Mathematical Statistics with Applications*, 7th ed. Wackerly, Mandenhall and Scheaffer \approx \$117. **Buy 4th, 5th or 6th edition for \$5.** Use the www.amazon.com or the www.addall.com used books link to find earlier editions at reasonable prices.

Course Webpage: (<http://parker.ad.siu.edu/Olive/M483.html>)

email: dolive@siu.edu *Office hours:* MWThF 10-10:30, 2:10-3:10

I am also available by appointment and on a walkin basis, eg after class.

The Math 480 webpage <http://parker.ad.siu.edu/Olive/M480.html> is also useful.

This course covers probability, expectation, mgf's, discrete and continuous random variables, marginal and conditional distributions, covariance, independence, double integrals, transformations, CLT, point and interval estimation, method of moments, MLE's, MSE, tests of hypothesis.

Math 483 is useful for actuarial exams P and CAS S.

Final: Friday, Dec. 15, 10:15-12:15 in Neckers 0156.

Cumulative, but emphasis is on the material from the last 2 exams and last 6 or 7 quizzes.

Last day to drop: office on Friday Oct. 27, by internet Sunday Oct. 29.

The grading below is tentative. If necessary, HW will be divided into 150 points and 50 attendance points. Do not turn in HW late. Turn HW in early if you know that you will miss class. If you miss a quiz, I will allow you to take it before the next class (eg during office hours) 2 times, except for the last week of classes.

Grading: 2 HW and 1 Quiz will be dropped

HW	200		Quizzes	100	
exam1	100	exam 2	100	exam 3	100
exam4	100	final	300	total	1000
min. grade	points	min. grade	points	min. grade	points
A	900-1000	B	800-899	C	700-799
D	550-699				

These texts are at Math 483 level.

Hogg, R.V., Tanis, E.A., and Zimmerman, D. (2014), *Probability and Statistical Inference*, 9th ed., Pearson, Boston, MA. (\$158, 1995 QA273H694)

Johnson, R., Miller, I., and Freund, J. (2010), *Miller & Freund's Probability and Statistics for Engineers*, 8th ed., Pearson, Boston, MA. (\$135 519.202462 M648P1985 1985 ed)

Larsen, R.J., and Marx, M.L. (2011), *Introduction to Mathematical Statistics and Its Applications*, 5th Ed., Prentice Hall, Upper Saddle River, NJ. \$90

Wackerly, D.D., Mendenhall, W. and and Scheaffer, R.L., (2008), *Mathematical Statistics with Applications*, 7th ed., Duxbury, Belmont, CA. (current M483 text) \$117

Walpole, R.E., Myers, R.H., Myers, S.L., and Ye K., (2011), *Probability & Statistics for Engineers & Scientists*, 9th ed., Prentice Hall, Upper Saddle River, NJ. \$145

Week of	MON	Wed	Th	FRI
Aug 21	2.1,2.2,2.3,2.4	2.4, 2.5	2.5,2.6	2.6, HW1
Aug 28	2.7, 2.8, HW2	2.9,3.1	3.2, 3.3, HW3	3.3,3.4,Q1
Sept 4	no class	3.4	3.5,3.8,3.9,HW4	3.9, Q2
Sept 11	4.1,4.2,HW5, rev	4.3,4.4	Exam 1	4.5
Sept 18	4.5,4.6,HW6	4.6,4.7	4.7,HW7	4.9,5.1, Q3
Sept 25	5.2,5.3, HW8	5.3,5.4	5.4, 5.5,HW9	5.5, Q4
Oct 2	5.6,5.7, HW10	5.7,5.8	5.8,6.1,HW11,rev	6.2,6.3, Q5
Oct 9	6.3,HW12	6.4	Exam 2	6.4
Oct 16	6.4,HW13	6.5	7.1, 7.2,HW14	7.2, Q6
Oct 23	7.2,7.3, HW15	7.3,7.5	8.1,8.2,HW16	8.5,8.6, Q7
Oct 30	8.7,8.8, HW17, rev	8.8	Exam 3	8.8,8.9
Nov 6	8.9,9.6	9.6,9.7	9.7, HW18	9.7,Q8
Nov 13	9.7, HW19	9.7, 9.3	10.1,10.2,HW20	10.3,10.6, Q9
Nov 20	no class	no class	no class	no class
Nov 27	MLE rev, 10.8,HW21, Q10	10.8,10.7, rev	exam 4	10.8, 10.9
Dec 4	10.9,10.10 HW22	CI-hyp	10.11, Q11	rev

I have old calculus books that I want to give to students in my office.

You can get hired as an actuary with a college degree after passing one actuarial exam, and salaries increase as you pass more exams. This class prepares you for *actuarial exam P* (probability). Actuaries are often ranked as a top ten job with high pay, and they assign prices to risks. Many people with math or engineering degrees become actuaries. Some websites about actuaries are www.beanactuary.org www.casact.org www.soa.org www.actuary.org and www.aspa.org.

These texts are at a slightly higher level.

Hogg, R.V., McKean, J.W., and Craig, A.T. (2012), *Introduction to Mathematical Statistics*, 7th ed., Pearson Education, Boston, MA. (\$148 5th QA276H591970 and 519.9H716i1965)

Rice, J. (1994), *Mathematical Statistics and Data Analysis*, 2nd ed, Duxbury Press, Belmont, CA. (lots of real data applications)

Lower level stat books: Dekking, F.M., Kraaikamp, C., Lopuhaä, H.P., and Meester, L.E. (2005), *A Modern Introduction to Probability and Statistics Understanding Why and How*, Springer-Verlag, London. QA273.M645 2005

Rosenkrantz, W.A. (2009), *Introduction to Probability and Statistics for Science, Engineering and Finance*, CRC Press, Boca Rotan, FL. QA273.R765 2009

Probability: Ash, C. (1993), *The Probability Tutoring Book: an Intuitive Course for Engineers and Scientists (and Everyone Else!)*, IEEE Press, NY. (519.2A819P Does counting, probability, expectation and double integrals better than the M483 text.)

Finan, M.B. (2018), *A Probability Course for the Actuaries: a Preparation for Exam P/1*, at (<http://faculty.atu.edu/mfinan/actuarieshall/Pbook.pdf>) (765 pages, 10 sample exams, also see www.soa.org/Files/Edu/edu-exam-p-sample-quest.pdf and www.soa.org/Files/Edu/edu-exam-p-sample-sol.pdf)

Calculus: Ash, C., and Ash, R.B. (1993), *The Calculus Tutoring Book*, Wiley, New York, NY.

Ayres, F. *Schaum's Outline of Theory and Problems of Differential and Integral Calculus*, 515A985s1964

Edwards, C.H. and Penney, D.E. *Calculus and Analytic Geometry*, 515.15E26C

Klaff, A.A. (1956), *Calculus Refresher*, Dover, New York, NY.

Salas, S.L. and Hille, E. (1982), *Calculus One and Several Variables*, Wiley.