

Course Home - Syllabus

Syllabus

MATH-505: Statistical Methods I

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Course Description

This applied statistics course presents a variety of statistical topics in the context of real world data. The goal of this course is to demonstrate the broad applicability of advanced statistical techniques. Topics include probability, inferences for one and two samples, analysis of single and multifactor experiments, regression analysis, and nonparametric methods.

Credit Hours: 3

Prerequisite: A bachelor's degree with a Mathematics major or must be state certified (in any state) to teach Mathematics at a secondary school level.

Course Outcomes

Upon completion of this course, you should be able to:

1. Construct quantitative and qualitative models that describe real world phenomena.
2. Compare various statistical techniques in order to solve problems and make decisions.
3. Analyze the assumptions of various statistical procedures.
4. Apply the descriptive procedures and inferential statistical tests.
5. Interpret the descriptive and inferential results.
6. Examine God's natural order in light of mathematical understanding.

Course Textbook

Tamhane, A. C. & Dunlop, D. D. (2000). Statistics and Data Analysis: from Elementary to Intermediate. Boston, MA: Pearson Education. ISBN-13: 9780137444267

IWU Diversity Statement

IWU, in covenant with God's reconciling work and in accordance with the Biblical principles of our historic Wesleyan tradition, commits to build a community that reflects Kingdom diversity. We will foster an intentional environment for living, teaching and learning, which exhibits honor, respect, and dignity. Acknowledging visible or invisible differences, our community authentically values each member's earthly and eternal worth. We refute ignorance and

isolation and embrace deliberate and courageous engagement that exhibits Christ's commandment to love all humankind.

Grading Scale

Grade	Quality Points Per Credit	Percentage	Score
A	4.0	95%–100%	950–1000
A-	3.7	92%–94.9%	920–949
B+	3.3	89%–91.9%	890–919
B	3.0	85%–8.9%	850–889
B-	2.7	82%–84.9%	820–849
C+	2.3	79%–81.9%	790–819
C	2.0	75%–78.9%	750–789
C-	1.7	72%–74.9%	720–749
D+	1.3	69%–71.9%	690–719
D	1.0	65%–68.9%	650–689
F	0.0	0%–64.9%	0–649

Grading Policies

Your grading policy for your course is dependent on your school and program. Your grading policies can be found in the IWU Catalog.

Letter Grade Equivalencies

Grade	Description of Work
A	Clearly stands out as excellent performance. Has unusually sharp insights into material and initiates thoughtful questions. Sees many sides of an issue. Articulates well and writes logically and clearly. Integrates ideas previously learned from this and other disciplines. Anticipates next steps in progression of ideas. Example "A" work should be of such nature that it could be put on reserve for all cohort members to review and emulate. The "A" cohort member is, in fact, an example for others to follow.
B	Demonstrates a solid comprehension of the subject matter and always accomplishes all course requirements. Serves as an active participant and listener. Communicates orally and in writing at an acceptable level for the degree program. Work shows intuition and

	creativity. Example "B" work indicates good quality of performance and is given in recognition for solid work; a "B" should be considered a good grade and awarded to those who submit assignments of quality less than the exemplary work described above.
C	Quality and quantity of work in and out of class is average. Has marginal comprehension, communication skills, or initiative. Requirements of the assignments are addressed at least minimally.
D	Quality and quantity of work is below average. Has minimal comprehension, communication skills, or initiative. Requirements of the assignments are addressed at below acceptable levels.
F	Quality and quantity of work is unacceptable and does not qualify the student to progress to a more advanced level of work.

Course Module Summary

Module	Discussion	Assignment	Test	Total Points	Estimated Time
Module One	2/30	1/70		100	11 hours
Module Two	2/30	1/70		100	11 hours
Module Three	2/30	1/70		100	11 hours
Module Four	2/30	1/70		100	11 hours
Module Five	2/30	1/70	1/100	200	15 hours
Module Six	2/30	1/70		100	11 hours
Module Seven	2/30	1/70		100	11 hours
Module Eight	2/30	1/70	1/100	200	15 hours
Course Totals	16/240	8/560	2/200	1000	96 hours

* Number of Activities/Sum Point Totals. These timings are based on estimations of average times to complete each assignment. Actual assignment completion times will vary.

Module One Outline

Assignments	Type	Due	Estimated Time*	Points
1.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
1.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
1.3 Module One Exercises	Dropbox	Due by the end of the module	7 hours	70
Totals			11 hours	100

Module Two Outline

Assignments	Type	Due	Estimated Time*	Points
2.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
2.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
2.3 Module Two Exercises	Dropbox	Due by end of the module	7 hours	70
Totals			11 hours	100

Module Three Outline

Assignments	Type	Due	Estimated Time*	Points
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3.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
3.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
3.3 Module Three Exercises	Dropbox	Due by end of the module	7 hours	70
Totals			11 hours	100

Module Four Outline

Assignments	Type	Due	Estimated Time*	Points
4.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
4.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
4.3 Module Four Exercises	Dropbox	Due by the end of the module.	7 hours	70
Totals			11 hours	100

Module Five Outline

Assignments	Type	Due	Estimated Time*	Points
5.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response	1 hour	10

		due by the end of the module.		
5.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
5.3 Module Five Exercises	Dropbox	Due by the end of the module	7 hours	70
5.4 Midterm Exam	Dropbox	Due by the end of the module	4 hours	100
Totals			15 hours	200

Module Six Outline

Assignments	Type	Due	Estimated Time*	Points
6.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
6.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
6.3 Module Six Exercises	Dropbox	Due by the end of the module.	7 hours	70
Totals			11 hours	100

Module Seven Outline

Assignments	Type	Due	Estimated Time*	Points
7.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the	1 hour	10

		module.		
7.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	30
7.3 Module Seven Exercises	Dropbox	Due by end of the module.	7 hours	70
Totals			11 hours	100

Module Eight Outline

Assignments	Type	Due	Estimated Time*	Points
8.1 Biblical Wisdom	Discussion	Initial post due by the fourth day of the module. One response due by the end of the module.	1 hour	10
8.2 Discussion	Discussion	Initial post due by the fourth day of the module. Two responses due by the end of the module.	3 hours	20
8.3 Module Eight Exercises	Dropbox	Due by the end of the module.	7 hours	70
8.4 Final Exam	Dropbox	Due by the end of the module.	4 hours	100
8.5 End of Course Survey	Dropbox	Due by the end of the module.	30 minutes	10 extra credit
Totals			15.5 hours	200
Course Totals			96.5 hours	1000

* These timings are based on estimations of average times to complete each assignment. Actual assignment completion times will vary.

Pacing Guide

Eight Weeks

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Module 1	X							
Module 2		X						
Module 3			X					
Module 4				X				
Module 5					X			
Module 6						X		
Module 7							X	
Module 8								X

Module 1 is due by the end of Week 1; Module 2 is due by the end of Week 2; etc.

Course Development Resources

Kapla Tamhane, A. C. & Dunlop, D. D. (2000). *Statistics and Data Analysis: from Elementary to Intermediate*. Boston, MA: Pearson Education. ISBN-13: 9780137444267

Expectations, Policies, and Important Student Information

Expectations

Instructor Expectations of Students

- Submit assignments on time. If there are circumstances beyond your control, discuss possible options for completion with your instructor.
- Accomplish work on your own unless otherwise instructed (i.e., do not cheat or plagiarize).
- Contribute substantively to discussions according to assignment guidelines provided.
- Contribute to discussions throughout each workshop rather than waiting until the end of the workshop.
- Contribute substantively to group assignments (if required in course).
- After spending a reasonable amount of time on it, ask your instructor if you do not understand content or instructions. Ask for help early while there is time to fix problems.
- Treat other students courteously and respectfully.
- Every time you enter your course, read and abide by postings made in the Announcements and Faculty Forum. These postings are critical.

Students' Expectations of Instructor

- Set a friendly, open, and encouraging learning environment.
- Guide discussions as needed.
- Set clear rules, standards, and expectations.
- Provide workshop grades and feedback within seven days of assignment due date.
- Provide final grades and feedback within seven days after the last day of class.
- Ensure students treat each other respectfully.
- Respond to student inquiries within 48 hours.

Policies

Late Policy

- No credit is available for postings of any kind made in the discussion forums after a given workshop ends.
- If your instructor approves your submission of late assignments, each assignment score will be penalized 10% per day up to five days late. After the end of the fifth day, late assignments will not be accepted. An assignment is a paper, a project, a team presentation, etc., but not a discussion or quiz/test.
- No late assignments will be accepted after the close of the final workshop.
- **Unless otherwise stated by the course instructor, all assignments are due by 11:59pm EST.**