This course supports the assessments for Introduction to Probability and Statistics. The course covers 6 competencies and represents 3 competency units.

**Introduction**

**Overview**
News reports quote statistical data from studies conducted across the breadth of the physical and social sciences. The statistical data models real-world situations and is used to drive policy in government, corporate, and personal realms. You need to be able to make informed decisions about which studies and results are valid, which are not, and how those results affect your decisions. This course will give you background in what constitutes sound research design and how to appropriately model phenomena using statistical data.

**Getting Started**
Welcome to Introduction to Probability and Statistics! To assist you in mastering the material of this course you will use Acrobatiq learning platform. This is an interactive, module-based learning resource, which includes text to read and questions to help you practice retrieving and applying your knowledge, as well as quizzes at the end of each module. It is highly recommended that you complete the modules in the order listed in the pacing guide. This course includes a pre-assessment which you can take at any time. In addition to these resources, course instructors are also available to answer questions and discuss concepts of probability and statistics. Competency will be demonstrated by the successful completion of an objective assessment.

**Introduction Video**
Watch the following video for an introduction to this course:

*Note: To download this video, right-click the following link and choose "Save as...": [download video]*

**Competencies**
This course provides guidance to help you demonstrate the following 6 competencies:

- **Competency 125.1.1: Summarizing Data**
  The graduate evaluates categorical and quantitative data using appropriate numerical measures and graphical displays.

- **Competency 125.1.2: Examining Relationships**
  The graduate evaluates the relationship between two variables through the creation and interpretation of numerical summaries and visual displays.

- **Competency 125.1.3: Sampling Methods**
  The graduate evaluates the sampling methods used in studies including the effect they have on conclusions that can be made.
• **Competency 125.1.4: Designing Studies**
  The graduate designs and conducts observational studies, controlled experiments, and surveys to explore population characteristics.

• **Competency 125.1.5: Theoretical and Empirical Probability**
  The graduate applies theoretical or empirical probability to a situation to quantify uncertainty.

• **Competency 125.1.6: Determining Probability**
  The graduate determines the probability of events using simulations, diagrams, and probability rules.

## Learning Materials

This course is your roadmap to success. You will complete this course in the Acrobatiq learning environment. Remember to return to the course regularly as you work through the modules to access important resources, including suggested pacing and updates from your course instructors.

### Course Communities

On the right hand side of your course are four links to valuable resources: Course Announcements, Course Tips, Course Search, and Course Chatter. This section contains important, up-to-date information provided by your course instructors.

Course search articles are a valuable resource available anytime to answer many of your questions and support your success. Course Search contains vital videos, articles, and optional supplemental resources beyond the primary learning resource that can help you prepare for the objective assessment. To find a quick answer in Course Search, enter a key word such as "whiteboard" to find an article on whiteboard requirements for taking the exam.

### Automatically Enrolled Resources

You will be automatically enrolled in the Acrobatiq learning resource. Acrobatiq is the main learning resource and is a fully online course complete with readings, videos, and interactive exercises. Targeted feedback and self-assessment tools, as well as trackable exercises, will help you assess your strengths and quickly address misconceptions of statistics you might encounter.

### Additional Preparations

**Purchase a Calculator**

Acquire a scientific calculator and familiarize yourself with how to use it. Refer to the Calculator Guidelines in the WGU Student Handbook for details regarding calculators that are acceptable on WGU exams.

**Whiteboards**

Whiteboards may be used to assist you as you complete the assessment for this course. Paper, or other note taking resources, may not be used during the assessment. For math assessments only, scratch paper can be used only when taking the assessment at an on-site testing center. Please view the following video for more information on how to use a whiteboard:
Note: To download this video, right-click the following link and choose "Save as...": download video.

Using the Acrobatiq Learning Resource

Using the Acrobatiq Learning Resource
Follow the steps below as you work through the learning resource:

1. Read the material for each module and take notes of vocabulary, important concepts, and examples.
2. Complete the "Learn By Doing" and "Did I Get This?" exercises.
3. Take the Checkpoint Test for each module.

If you score 80% or better, you are ready to move on to the next activity.

If you score less than 80%, review the checkpoint to see what you need to study before taking another attempt. Additionally, you can review the checkpoint with a course instructor by calling the General Education Math Helpline. Please note the number varies depending on your program. Be sure to call the correct extension to access instructors in your program.

Helpline for College of Health Professions ONLY: 1-877-435-7948 ext. 3145

Hours* (Mountain Time)

- Monday-Thursday, 9 a.m.-11 a.m. and 1 p.m.-7 p.m.
- Friday and Saturday, 9 a.m.-2 p.m.
- Closed Sundays
  *Note: Holiday hours apply. No prior appointment is necessary.

Helpline for the business, IT, and teachers colleges: 1-877-435-7948 ext. 1761

Hours* (Mountain Time)

- Monday and Wednesday, 9 a.m.-11 a.m. and 2 p.m.-9 p.m.
- Tuesday and Thursday, 9 a.m.-11 a.m. and 2 p.m.-7 p.m.
- Friday and Saturday, 9 a.m.-2 p.m.
- Sunday, 4 p.m.-7 p.m.
  *Note: Holiday hours apply. No prior appointment is necessary.

Pacing Guide

Acrobatiq Module and Topics Pacing Guide
This pacing guide suggests a weekly structure to pace your completion of learning activities. It is provided as a suggestion and does not represent a mandatory schedule. Please complete entire the module including its topics for each week. Upon completing the preassessment, your coaching report will include the topics listed in the pacing guide.
Goal: Complete all activities in Acrobatiq including all 11 checkpoints with a score of 80% or better.

Week 1

- Modules 1-3: Introduction
  - Learning Strategies, Big Picture
- Module 4: Examining Distributions
  - Use the graphic organizer to organize / supplement your notes.
  - Complete the entire module, including:
    - Topic 1.1: One categorical variable
    - Topic 1.1: One quantitative variable
- Supplemental materials for this week include these videos on selected topics.

Week 2

- Module 5: Examining Relationships
  - Use the graphic organizer to organize / supplement your notes.
  - Complete the entire module, including:
    - Topic 1.2: Case QQ
    - Topic 1.2: Causation
    - Topic 1.2: Role type classification
    - Cases CQ and CC
- Module 6: Summary
  - Use the graphic organizer to organize / supplement your notes.
  - Review modules 4 and 5
- Supplemental materials for this week include these videos on selected topics.

Week 3

- Module 7: Sampling
  - Use the graphic organizer to organize / supplement your notes.
  - Complete the entire module, including:
    - Topic 1.3: Sampling methods
  - Supplemental materials for this module include these videos on selected topics.
- Module 8: Designing Studies
  - Use the graphic organizer to organize / supplement your notes.
  - Complete the entire module, including:
    - Topic 1.4: Designing studies
  - Supplemental materials for this module include these videos on selected topics.
- Module 9: Summary
  - Use the graphic organizer to organize / supplement your notes.
  - Review of modules 7 and 8

Week 4

Print out and use the Key Concepts as you complete the probability modules.
○ Module 10: Introduction to Probabilities
  ▪ Use the graphic organizer to organize / supplement your notes.
  ▪ Complete the entire module, including:
    • Topic 1.5: Theoretical and empirical probability
  ▪ Supplemental materials for this module include these videos on selected topics.

○ Module 11: Finding Probability of Events
  ▪ Use the graphic organizer to organize / supplement your notes.
  ▪ Complete the entire module, including:
    • Topic 1.6: Finding probability of events
  ▪ Supplemental materials for this module include these videos on selected topics.

Week 5

○ Module 12: Conditional Probability and Independence
  ▪ Use the graphic organizer to organize / supplement your notes.
  ▪ Complete the entire module, including:
    • Topic 1.6: Conditional probability and independence
  ▪ Supplemental materials for this module include these videos on selected topics.

Week 6

○ Am I ready?
  ▪ Take the pre-assessment to determine if you are ready to schedule the assessment.
  Contact your assigned course instructor or the helpline to review your coaching report.

Data Outputs

The Acrobatiq learning resource provides instructions on how to use StatCrunch or other statistical software such as Excel to complete some activities. You do not need to use StatCrunch, R, Excel, Minitab, or TI tools as we have created the necessary Data Outputs for you. Use the list of modules and activities below to complete the Acrobatiq activities.

Use the list of modules and activities below to complete the Acrobatiq activities that require Excel or StatCrunch.

• Module 4, page 11: Exploring a Dataset Activity
• Module 4, page 16: One Categorical Variable Activity
• Module 4, page 21: Histogram Activity
• Module 4, page 32: Oscar Winners Activity
• Module 4, page 35: Boxplot Activity
• Module 4, page 37: Standard Deviation Activity
• Module 4, page 40: Lab Exercise #1-Drinking Habits and Integrity of College Students
• Module 5, page 48: Case CActivity
• Module 5, page 54: Scatterplot Activity
• Module 5, page 59: Linear Relationships Activity #1
• Module 5, page 64: Linear Relationships Activity #2
• Module 5: page 71: Lab Exercise-Body Image and Academic Performance of College Students
• Module 7, page 78: Sampling Activity
• Module 8, page 87: Causation and Experiments Activity
• Module 8, page 94: Lab Exercise-Treating Depression: A Randomized Clinical Trial

Calendar of Learning Events

Find your Calendar of Live Events, which includes cohorts and Q&A sessions, in the Course Tips section, located on the right-hand side of your course. Enroll in a cohort to receive weekly emails to keep you on track. Drop into a Q&A session any time to work directly with a course instructor!

Launch Your Course

Once you are ready to start this course or are actively working in the learning resource, click either the "Complete All" or the "Complete" button below. Both buttons effectively do the same thing and you only need to complete this step once.

Use the "Launch Course" button each time you want to access your learning resource to continue your learning.

Launch Introduction to Probability and Statistics in Acrobatiq

When you are ready to begin learning in your course, mark this activity complete.

Launch Course

Key Rules and Formulas

The following key rules and formulas are important in your preparation for the objective assessment. Acrobatiq’s Introduction to Probability and Statistics module numbers are included for your reference.

Key rules and formulas to memorize:

• The 1.5 (IQR) criterion for outliers (Module 4)
• The standard deviation rule (Module 4)
• Probability rules (Modules 11 and 12)

Assessment Preparation

Congratulations on completing the activities in this course! This course has prepared you to complete the assessments associated with this course. If you have not already been directed to complete the assessments, schedule and complete your assessments now.
Remember that you can use a scientific calculator on the assessment. Refer to the Calculator Guidelines in the WGU Student Handbook for details regarding calculators that are acceptable on WGU exams.

Policies

Please review these important policies:

Accessibility Policy

Western Governors University recognizes and fulfills its obligations under the Americans with Disabilities Act of 1990 (ADA), the Rehabilitation Act of 1973 and similar state laws. Western Governors University is committed to provide reasonable accommodation(s) to qualified disabled learners in University programs and activities as is required by applicable law(s). The Office of Student Accessibility Services serves as the principal point of contact for students seeking accommodations and can be contacted at ADASupport@wgu.edu.

Netiquette

Netiquette Guidelines

Online Netiquette: Guidelines for WGU Students These guidelines are a quick reference source for interacting with fellow students, mentors, and WGU staff. While these guidelines adhere to the standards outlined in the WGU Student Handbook, they are not meant as a replacement for the explicit information presented in the handbook.

Be professional and respectful:

- Be civil and kind in your interactions with others.
- Respond to important emails sent to you.
- Be cautious when using ALL CAPS (yelling), sarcasm, and humor
- Be cautious when posting content (pictures, comments)
- Avoid forwarding spam or selling anything.
- Keep comments related to the topic.
- Be aware that mentors, students, and others live in different time zones.

Be short, concise, and readable:

- Use sans serif fonts (e.g., Arial, Helvetica) with a point size of 12 or higher.
- Use acronyms cautiously. For example, common acronyms such as FAQ and RSVP are fine; however, unknown acronyms like UCET or USOE should be spelled out.

Be credible:

- Cite references and sources such as web links, articles, books, etc., when possible.
- Re-read your emails to clarify and ensure it sends the intended "message."
Be safe:

- Keep personal information private to avoid identity fraud.
- Keep other's information private (WGU students, companies, etc.)