



**UNIVERSITY OF GUAM**  
**COLLEGE OF NATURAL**  
**& APPLIED SCIENCES**

**MA 500 Introduction to R (1 credit)**

**Section Information**

**Course Delivery Mode:** Online(Zoom)

Tuesday/Thursdays: 4:00pm - 4:50pm

August 14, 2024 - October 4, 2024

**Instructor Information**

Regina-Mae Dominguez

Email [dominguezr@triton.uog.edu](mailto:dominguezr@triton.uog.edu)

Office Location – Online (Zoom)

Office Hours – By Appointment

**CATALOG DESCRIPTION**

This course builds an understanding of the basic syntax and structure of the R language for statistical analysis and graphics.

Prerequisite: One upper level (300+) statistics course.

**COURSE TOPIC**

Students will learn a comprehensive set of R data-related techniques through lessons, demonstrations, and homework assignments.

- Getting Started: Basic R
- Working with Qualitative Data
- Working with Quantitative Data
- Documenting Work
- Finding Help
- Working with Two Variables
- The Data Frame
- Importing Data
- Manipulating Data and Repetitive Tasks
- Multivariate Data
- Statistical Analysis:
  - regression models
  - hypothesis testings
  - probability with a focus on core R functions for distributions
- Data visualization

## **COURSE LEARNING OUTCOMES**

<b>Course SLOs:</b>	<b>Program Learning Outcomes (PLOs)</b>	<b>University Graduate Learning Outcomes (IGLOs)</b>	<b>Method of Assessment</b>
Understand the basic syntax and structure of R programs	PR-2	IGLO-1 IGLO-2	Homework
Import, clean, validate, and export data using R	PR-2	IGLO-1 IGLO-2	Homework/Project
Create effective data visualizations using R	PR-3, PR-5	IGLO-1 IGLO-2	Homework/Project
Conduct basic statistical analysis using R	PR-2, PR-5	IGLO-1 IGLO-2	Homework/Project
Create code that is clear, readable, and reproducible	PR-5, PR-6	IGLO-1 IGLO-2	Homework/Project

### **MS in Data Science Program Learning Outcomes (PLOs)**

**PR-1** Design and execute statistical experiments and hypothesis tests to extract meaningful insights from data.

**PR-2** Analyze and interpret complex statistical data using advanced statistical methodologies and tools.

**PR-3** Visualize data for exploration, analysis, and communication.

**PR-4** Develop and implement predictive models and machine learning algorithms to make data-driven decisions.

**PR-5** Communicate statistical analyses, findings, and recommendations to both technical and non-technical audiences effectively.

**PR-6** Collaborate with interdisciplinary teams to design, implement, and evaluate statistical projects.

### **Institutional Graduate Learning Outcomes (IGLOs)**

**IGLO-1:** Demonstrate mastery of critical skills, theories, methodologies, and other content knowledge at a level that will enable them to address fundamental questions in their primary area of study;

**IGLO-2:** Plan, conduct, and complete a significant research or creative project;

**IGLO-3:** Exercise oral and written communication skills sufficient to publish and present work in their field;

**IGLO-4:** Adhere to the ethical principles of academia and their respective disciplines in coursework, fieldwork, and other appropriate situations; and

**IGLO-5:** Exemplify, through service, the value of their discipline to the academy and the community at large, interacting productively and professionally with people from diverse backgrounds.

### **COURSE REQUIREMENTS**

- Software: RStudio
- Recommended Textbooks:
  - o *Statistics: An introduction using R 2nd ed.* 2014. Michael J. Crawley. Wiley and Sons.
  - o *Using R for Introductory Statistics.* 2014. John Verzani. Chapman & Hall/CRC.

### **Access Statement**

“Students must have access to a computer daily. The computer should have access to general software applications for word processing software, electronic spreadsheets, graphic presentation, video viewing software, the recommended web browser and a reliable internet connection. The student must be able to navigate the Learning Management System site, upload and download materials, participate in assigned online activities, and follow generally accepted online etiquette.” (direct statement from: UOG, 2022, Log No. 6771 “Faculty Guide for Developing Course Syllabus for Traditional and Online Learning Delivered Courses”, p. 6).

### **GRADING INFORMATION**

#### **Course Grade Scale (Letter to Percent Range)**

A+	98-100%
A	93-97%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	70-76%
D	60-69%
F	<60%

**UW:** Unofficial withdrawal assigned by Registrar—Student stopped attending classes and did not submit/file required documents.

**W:** Withdrawal assigned by Registrar—Student stopped attending classes and submits/files required documents.

### **GRADE CATEGORIES: ASSIGNMENTS AND PERCENTAGES**

Assessments/Assignments and Grade Percentage

1. Homework - 60%

## 2. Final project - 40%

### **COURSE, PROGRAM, AND UNIVERSITY POLICIES AND OTHER INFORMATION**

#### **Late Work Policy**

All assignments are expected to be submitted by the due date. Late submissions are discouraged as they may affect your learning progress and any timely feedback.

Assignments that are submitted 1-2 days late will receive a 10% reduction, 3-7 days late will receive a 20% reduction. Assignments submitted more than 1 week past the due date will not be accepted unless prior arrangement has been made.

#### **No Unauthorized Recording**

Only the instructor may record class sessions. Unauthorized recording of online class meetings is not allowed, to include screen shots that include identifiable information of any person in the session. Not only is the delivery of course content the intellectual property of the instructor, but students enrolled in the course have privacy rights. Unauthorized recording and distribution of online courses may violate federal law.

#### **EEO and ADA Statement**

##### **Americans with Disabilities Act Amendments Act (ADAAA) Accommodation Services**

The University is committed to providing an inclusive and welcoming environment for all members of our community free of all forms of discrimination and harassment in all programs, activities, and employment practices as required by Title VII and Title IX and other applicable statutes and policies. If you experience harassment or discrimination, report it immediately to the Director of EEO/ADA & TITLE IX Office, at 671-735-2244, 671-735-2971, 671-735-2244 (TTY) or [eeo-ada@triton.uog.edu](mailto:eeo-ada@triton.uog.edu). For immediate assistance in an emergency call 911.

For individuals covered under the ADA (Americans with Disabilities Act), if you are a student with a disability requiring academic accommodation(s), please contact the Student Counseling and Advising Service Accommodations Office to discuss your confidential request. Please provide an accommodation letter from the Disability Support Services Student Counseling and Advising Service Accommodation counselor. To register for academic accommodations, please contact or visit the School of Education, Room #110, [disabilitysupport@triton.uog.edu](mailto:disabilitysupport@triton.uog.edu), or telephone/(TTY) 671-735-2460.

For applicants or employees with a disability requiring employment or workplace accommodation(s), please contact the Director of EEO/ADA & TITLE IX Office to discuss your specific needs. Please provide documentation concerning your disability and the need for employment or workplace accommodation. Our office is located at the Lya Hami Hall, Dorm 2, right side entrance, first floor, Room #104, and our contact numbers are 671-735-2244, 671-735-2971, 671-735-2244 (TTY).

#### **Student Evaluation of Faculty Information**

The student course and faculty evaluations for courses will be administered at the completion of the semester within CollegeNet. Student participation is essential and appreciated. Student responses are anonymous and cannot be traced back to individual students. You will need your

WebAdvisor login credentials to complete the evaluation. If you experience login issues, please refer inquiries to OIT staff to assist at 735-2630/40.

### **Plagiarism Statement**

Academic dishonesty cannot be condoned by the University. Such dishonesty includes cheating and plagiarism (examples of which are given below), which violate the [Student Conduct Code](#) and could result in expulsion from the University.

Cheating includes but is not limited to giving unauthorized help during an examination, obtaining unauthorized information about an examination before it is administered, using inappropriate sources of information during an examination, altering the record of any grades, altering answers after an examination has been submitted, falsifying any official University record, and misrepresenting the facts in order to obtain exemptions from course requirements.

Plagiarism includes but is not limited to submitting any document, to satisfy an academic requirement, that has been copied in whole or part from another individual's work without identifying that individual; neglecting to identify as a quotation a documented idea that has not been assimilated into the student's language and style, or paraphrasing a passage so closely that the reader is misled as to the source; submitting the same written or oral material in more than one course without obtaining authorization from the instructors involved; or dry-labbing, which includes (a) obtaining and using experimental data from other students without the express consent of the instructor, (b) utilizing experimental data and laboratory write-ups from other sections of the course or from previous terms during which the course was conducted, and (c) fabricating data to fit the expected results.

### **Certification of Original Work**

Students in the online course must verify the originality of work submitted. It will be required for students to include a certification statement for each submitted written paper and submitted assignment. The following certification statement should be included for submitted papers:

I certify that the attached paper is my original work. I am familiar with, and acknowledged my responsibilities which are part of, the University of Guam Student Code of Academic Integrity. I affirm that any sections of the paper which has been submitted previously are attributed and cited as such and that this paper has not been submitted by anyone else. I have identified the sources of all information whether quoted verbatim or paraphrased, all images, and all quotations with citations and reference listings. Along with citations and reference listings, I have used quotation marks to identify quotations of fewer than 40 words and have used block indentation for quotations of 40 or more words. Nothing in this assignment violates copyright, trademark, or other intellectual property laws. I further agree that the submission of my assignment as replied to this thread is intended to have, and shall have, the same validity as my handwritten signature.

### **Communication Policy**

University policy states that official communications will be sent using university assigned (@gotriton or @triton) email addresses. University electronic mail and messaging is to be used to enhance and facilitate teaching, learning, scholarly research, support academic experiences,

and to facilitate the effective business and administrative processes of the University. (OIT policy manual, 3.10, p. 36)

**Tobacco-Free and Smoke-Free Campus**

The University of Guam has in place a Tobacco-Free Policy. Please read the policy at:

<https://www.uog.edu/smoke-free-uog.php>