

**Information Technology**  
**Course Number: 22:960:641**  
**Course Title: Analytics for Business Intelligence**

## **COURSE DESCRIPTION**

This course is meant to be a graduate introduction to the analytics of Business Intelligence. The data and analysis will be done using R and third party packages. We will explore fundamental techniques used in Business Intelligence and a little data wrangling.

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## **COURSE MATERIALS**

- Slides on Canvas
  - R Programming Notes Posted on Canvas
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## **LEARNING GOALS AND OBJECTIVES**

The goal of this class is to learn how to program and do analytical business intelligence in R and understand how to apply theoretical data science concepts to a managerial problem.

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## **ACADEMIC INTEGRITY**

*I do NOT tolerate cheating.* Students are responsible for understanding the RU Academic Integrity Policy (<http://academicintegrity.rutgers.edu/>)

I will strongly enforce this Policy and pursue *all* violations. On all examinations and assignments, students must sign the RU Honor Pledge, which states, “On my honor, I have neither received nor given any unauthorized assistance on this examination or assignment.” I will screen all written assignments through *SafeAssign* or *Turnitin*, plagiarism detection services that compare the work against a large database of past work. Don’t let cheating destroy your hard-earned opportunity to learn. See [business.rutgers.edu/ai](http://business.rutgers.edu/ai) for more details.

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## **ATTENDANCE AND PREPARATION POLICY**

- Attendance is not required but is strongly recommended
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## CLASSROOM CONDUCT

Please respect your fellow classmates by not disrupting the lectures or talking while they are trying to ask questions.

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## EXAM DATES AND POLICIES

There are 3 exams in this course:

**Midterm Exam 1:** No calculator, 2 cheat sheets double-sided

**Midterm Exam 2:** No calculator, 2 cheat sheets double-sided, it is **cumulative**

**Final Exam:** it is **cumulative**, No calculator, 2 cheat sheets double-sided

During exams, the following rules apply:

- If you have a disability that influences testing procedures, provide me an official letter from the Office of Disability Services at the start of the semester.
  - No cell phones or other electronics are allowed in the testing room.
  - You must show a valid Rutgers photo ID to enter the room and to turn in the exam.
  - Alternate seating; do not sit next to another student or in your usual seat.
  - Use the bathroom prior to the exam start; bathroom breaks, if essential, will be escorted.
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## GRADING POLICY

Midterm 1 – 130 pts

Midterm 2 – 130 pts

Final – 260 pts

Grade scale (pts):

A  $\geq$  400

399  $\geq$  A-  $>$  375

374  $\geq$  B+  $>$  350

349  $\geq$  B  $>$  325

324  $\geq$  B-  $>$  300

300  $\geq$  C+  $>$  275

274  $\geq$  C  $>$  250

249  $\geq$  C-  $>$  225

224  $\geq$  D  $>$  200

F  $<$  224

- Grade posting: My graders do their best to return grades the following class.
- Grade grubbing: Consider a note along these lines: “Your final grade is not subject to negotiation. If you feel I have made an error, submit your written argument to me within one week of receiving your final grade. Clarify the precise error I made and provide all due supporting documentation. If I have made an error, I will gladly correct it. But I will adjust grades only if I have made an error. I cannot and will not adjust grades based on consequences, such as hurt pride, lost scholarships, lost tuition reimbursement, lost

job opportunities, or dismissals. Do not ask me to do so. It is dishonest to attempt to influence faculty in an effort to obtain a grade that you did not earn, and it will not work.

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## COURSE SCHEDULE

**This Syllabus WILL change throughout the semester!!**

<b>Topic</b>
Introduction, Introduction to R, Data Containers
Chapter 1 – Extract, Transform, and Load Practice Set # 1
Chapter 2 – Data Cleaning Practice Set # 2
Chapter 3 – Exploratory Data Analysis
Chapter 3 – Exploratory Data Analysis Ggplot Visual Analytics Practice Set # 3
<b>Midterm # 1 – In class</b>
Chapter 4 – Linear Regression for Business
<b>NO CLASS!!!!</b>
<b>NO CLASS!!!!</b>
Chapter 4 – Linear Regression for Business Practice Set # 4
Chapter 5 – Data Mining with Cluster Analysis (Kmeans)
Chapter 5 – Data Mining with Cluster Analysis (Hierarchical)
<b>Midterm # 2 – In class</b>
Chapter 5 – Data Mining with Cluster Analysis (Hierarchical) Practice Set # 5
Chapter 7 – Web Dashboards with Shiny
<b>Final – In class</b>

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## SUPPORT SERVICES

If you need accommodation for a *disability*, obtain a Letter of Accommodation from the Office of Disability Services. The Office of Disability Services at Rutgers, The State University of New Jersey, provides student-centered and student-inclusive programming in compliance with the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments of 2008, Section 504 of the Rehabilitation Act of 1973, Section 508 of the Rehabilitation Act of 1998, and the New Jersey Law Against Discrimination. More information can be found at [ods.rutgers.edu](https://ods.rutgers.edu).

[Rutgers University-New Brunswick ODS phone (848)445-6800 or email [dsoffice@echo.rutgers.edu](mailto:dsoffice@echo.rutgers.edu)]

[Rutgers University-Newark ODS phone (973)353-5375 or email [ods@newark.rutgers.edu](mailto:ods@newark.rutgers.edu)]

If you are *pregnant*, the Office of Title IX and ADA Compliance is available to assist with any concerns or potential accommodations related to pregnancy.

[Rutgers University-New Brunswick Title IX Coordinator phone (848)932-8200 or email [jackie.moran@rutgers.edu](mailto:jackie.moran@rutgers.edu)]

[Rutgers University-Newark Office of Title IX and ADA Compliance phone (973)353-1906 or email [TitleIX@newark.rutgers.edu](mailto:TitleIX@newark.rutgers.edu)]

If you seek *religious accommodations*, the Office of the Dean of Students is available to verify absences for religious observance, as needed.

[Rutgers University-New Brunswick Dean of Students phone (848)932-2300 or email [deanofstudents@echo.rutgers.edu](mailto:deanofstudents@echo.rutgers.edu)]

[Rutgers University-Newark Dean of Students phone (973)353-5063 or email [DeanofStudents@newark.rutgers.edu](mailto:DeanofStudents@newark.rutgers.edu)]

If you have experienced any form of *gender or sex-based discrimination or harassment*, including sexual assault, sexual harassment, relationship violence, or stalking, the Office for Violence Prevention and Victim Assistance provides help and support. More information can be found at <http://vpva.rutgers.edu/>.

[Rutgers University-New Brunswick incident report link: <http://studentconduct.rutgers.edu/concern/>. You may contact the Office for Violence Prevention and Victim Assistance at (848)932-1181]

[Rutgers University-Newark incident report link: [https://cm.maxient.com/reportingform.php?RutgersUniv&layout\\_id=7](https://cm.maxient.com/reportingform.php?RutgersUniv&layout_id=7) . You may also contact the Office of Title IX and ADA Compliance at (973)353-1906 or email at [TitleIX@newark.rutgers.edu](mailto:TitleIX@newark.rutgers.edu). If you wish to speak with a staff member who is confidential and does **not** have a reporting responsibility, you may contact the Office for Violence Prevention and Victim Assistance at (973)353-1918 or email [run.vpva@rutgers.edu](mailto:run.vpva@rutgers.edu)]

If students who have experienced a temporary condition or injury that is adversely affecting their ability to fully participate, you should submit a request via <https://temporaryconditions.rutgers.edu> .

If you are a military **veteran** or are on active military duty, you can obtain support through the Office of Veteran and Military Programs and Services. <http://veterans.rutgers.edu/>

If you are in need of **mental health** services, please use our readily available services.

[Rutgers University-Newark Counseling Center: <http://counseling.newark.rutgers.edu/>]

[Rutgers Counseling and Psychological Services–New Brunswick: <http://rhscaps.rutgers.edu/>]

If you are in need of **physical health** services, please use our readily available services.

[Rutgers Health Services – Newark: <http://health.newark.rutgers.edu/>]

[Rutgers Health Services – New Brunswick: <http://health.rutgers.edu/>]

If you are in need of **legal** services, please use our readily available services: <http://rusls.rutgers.edu/>

Students experiencing difficulty in courses due to **English as a second language (ESL)** should contact the Program in American Language Studies for supports.

[Rutgers–Newark: [PALS@newark.rutgers.edu](mailto:PALS@newark.rutgers.edu)]

[Rutgers–New Brunswick: [eslpals@english.rutgers.edu](mailto:eslpals@english.rutgers.edu)]

If you are in need of additional **academic assistance**, please use our readily available services.

[Rutgers University-Newark Learning Center: <http://www.ncas.rutgers.edu/rlc>]

[Rutgers University-Newark Writing Center: <http://www.ncas.rutgers.edu/writingcenter>]

[Rutgers University-New Brunswick Learning Center: <https://rlc.rutgers.edu/>]

[Optional items that many faculty include:

- Students must sign, date, and return a statement declaring that they understand the RU Academic Integrity Policy.

- Students must sign, date, and return a statement declaring that they understand this syllabus.]