

GRADUATE COUNCIL: NEW COURSE PROPOSAL

Originating Unit: NEEL (ACCT)

Type of action: New course Full online course**

Semester and year course will take effect: Fall 2023

New course title: Business Intelligence and Accounting Analytics

Appropriate computer abbreviation (30 spaces or less): Busi Intell & Acct Analytics

Course instructional methodology: Lecture

course component types: ugradcouncil.tcu.edu/forms/Course Component Types.pdf

New course number: ACCT 55200

Prerequisites for new course: *include an attachment if additional space is needed*

See attachment

[Click here to attach a file](#)

attached files can be seen and managed in Acrobat Pro by clicking on View > Show/Hide > Navigations Panes > Attachments

Description of new course (catalog copy): *include an attachment if additional space is needed*

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Fully Online Courses**

All online courses, and /or distance learning offerings must meet State Compliance regulations as defined by specific state legislation. TCU Distance Learning is any for-credit instruction provided to a TCU student outside the State of Texas. This includes internships, clinical, video conferencing, online, or any other delivery format that crosses state lines. Contact the Koehler Center for Teaching Excellence for guidelines. Include a letter of support from the Koehler Center with this proposal.

Supporting evidence or justification: (For a new course, attach proposed syllabus, including course objectives, course outline, and representative bibliography.)

Describe the intended outcomes of the course and how they will be assessed: *include an attachment if additional space is needed*

The course will assess analytical skills in accounting students with an emphasis on using technology to inform and make business decisions.

Click here to attach a file

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Additional resources required:

Faculty: none

Space: none

Equipment: none

Library: none

Financial Aid: none

Other: none

Change in teaching load:

Does this change affect any other units of the University? Yes No

If yes, submit supporting statement signed by chair of affected unit.


If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and the cross-listed units.

Chair of Originating Unit:

Name:

Unit:

Signature: Bill Wempe

 Digitally signed by Bill Wempe
Date: 2023.02.23 11:39:52 -06'00'

Prerequisite: Enrollment in the MAc program; or ACCT 30273 and credit for or concurrent enrollment in ACCT 40253; or instructor permission.

Enrollment in the MAc program; or ACCT 30273 and credit for or concurrent enrollment in ACCT 40253; or instructor permission. Business Intelligence & Accounting Analytics combines financial and operational data with mining tools to improve the timeliness and quality of inputs to decision processes. It encompasses both top-down (confirmatory or hypothesis driven) analysis using traditional statistical techniques and bottom-up (exploratory) analysis using database and machine learning techniques to discover regularities, relations, or local structure/patterns that are at first unknown. The topics and related methods discussed include information retrieval and enterprise reporting, classification, predictive modeling, clustering, association rules mining, and social network analysis. The application of these methods are illustrated using modern software tools via examples, homework assignments and group term projects.



ACCT 55200: Business Intelligence & Analytics
Sample Syllabus

Professor: Mark B. Wills, CPA
Office Location: NEEL 3260
Office Phone: (817) 257-4837
Email: mark.wills@tcu.edu (preferred contact method)
Office Hours: by appointment.

Final Exam Date

- The final exam will be on the last day of class in accordance with the TCU Final exam schedule.
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Course Description

Business Intelligence is a process for increasing the competitive advantage of a business through the intelligent use of available data in decision making. The key objectives of this course are two-fold: (1) to provide you with a theoretical and practical understanding of core data mining and analysis concepts and techniques; and (2) to provide you with hands on experience in applying these techniques to practical real-world business problems using commercial data mining, analysis, and visualization software. As an applied course, the emphasis will be on when and how to use each technique and how to interpret and effectively communicate the results.

Learning Outcomes

1. Understand data requirements and technology necessary to generate useful information for decision-makers.
 2. Identify and utilize appropriate methods, resources, and information in addressing accounting issues critically using data analytics.
 3. Manipulate data to form a business decision and communicate your process, outcomes and recommendations.
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Prerequisites

MAc student standing.

Required Texts / Materials

Required Resources provided by Instructor

- SQL
- VMWare
- R
- R Studio
- Alteryx

- **Note 1:** We will use MS Teams to post lecture notes, videos, exercises, and submit assignments. TCU online will be used to post grades.
- **Note 2:** A PC with Microsoft Windows 7+ is required. No exceptions will be made for students with Macs. You will have to use the computer lab to complete assignments if you do not have access to a Windows PC.

Course Policies and Requirements

Grading

Your grade for this course will be based on evidence of your accomplishment of the course objectives that I will gather from each of the following:

| Item | Grade Weight |
|---------------------|--------------|
| Exam 1 | 15% |
| Final Exam | 25% |
| Technology Projects | 35% |
| Final Project | 25% |

Below is a brief description of each of the graded course items:

- **Exams:** There will be two in-class exams and one comprehensive final exam. Exams will consist of matching, multiple-choice, and/or written response. Each exam must be taken online by the scheduled date and time; make-up exams can only be taken for University Official Absences as defined below in the “Attendance” section and **must** be scheduled prior to the exam date.
- **Final Exam.** Our comprehensive and final exam will be held on the last day of class for the May semester.
- **Technology Projects:** (8 @ 100 points each) will be assigned throughout the semester. The goals of these projects are to increase awareness of software utilized by companies to perform data extraction for analysis and decision-making. More information will be provided about each individual project in class.
- **Class participation /professionalism:** During the semester I will evaluate your overall participation based on the below discussion items.
 1. Participation and active effort during class projects. These projects will be collected as evidence of effort or progress toward a learning objective.
 2. To foster a more professional learning environment and to develop habits that lead to success in the business world, you must engage in professional behavior. Please view each class as equivalent to an important business meeting. Please note, that there will be the use of technology in the classroom, which means that from time-to-time I will ask for no technology days, or portions of class. Also, failure to use technology appropriately during group work will result in a dramatic reduction of your participation and professionalism grade.

In addition, professional conduct in this class includes, but is not limited to:

1. Please respect my time, yours and that of your colleagues.
2. Attending each class session, including arriving promptly and leaving at the designated time; notifying me prior to class should an exception be needed.
3. Being an attentive and active participant in group activity and class discussions.
4. Respecting diversity in the classroom and treating everyone involved in the class in a civil manner.
5. Planning outside activities to avoid conflicts with the activities outlined in the syllabus.
6. Abiding by the academic honesty policy discussed below.
7. Working on only this class during class time.
8. Fully participating on class group work. These will be collected and graded. Individuals who are not prepared and not participating will be noted and have their grade adjusted accordingly.

Final Numerical Grade Calculation (+/-) and Final Letter Grade Calculation:

Letter Grades will be assigned based on the below percentages:

| | | | |
|-----------|-----------|-----------|----------|
| A | 94 – 100% | C | 73 – 76% |
| A– | 90 – 93% | C– | 70 – 72% |
| B+ | 87 – 89% | F | >70% |
| B | 83 – 86% | | |
| B– | 80 – 82% | | |
| C+ | 77 – 79% | | |

Late Work

- Work must be submitted on time and via the method included in the assignment sheet. Late work will only be accepted with prior authorization and may result in a ½ percentage grade deduction.

Grading Concerns

I take grading very seriously and I strive to be as fair and as consistent as possible. However, if you decide to challenge a grade on an assignment or exam please submit a written appeal to me **within seven days** after the graded item is handed back to the class. The originally graded work must be submitted with a detailed explanation for the reason for the appeal. Upon receipt of a grade appeal, I reserve the right to re-evaluate the entire assignment or exam in addition to the section in question. Please note that I cannot and will not engage in discussion regarding grades or grade appeals through e-mail or in class. All written communication must be in the form of a dated memo.

TCU Email

Email Notification: Only the official TCU student email address will be used for all course notification. It is your responsibility to check your TCU email on a regular basis.

Attendance

- Regular and punctual class attendance is essential, and no assigned work is summarily excused because of absence, no matter what the cause.

If you are absent to represent the University (as in athletics, chorus, band, national or state meetings of organizations represented at TCU), for an Official University Absence through the Campus Life Office, please notify me immediately and prior to the absence date.

Technology Policy

- You will be required to bring your laptop to class to work on technology assignments each day. Specific projects will be announced in class and are included in the course schedule.
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Academic Misconduct

Academic Misconduct (Sec. 3.4 from the [Student Handbook](#)): Any act that violates the academic integrity of the institution is considered academic misconduct. The procedures used to resolve suspected acts of academic misconduct are available in the offices of Academic Deans and the Office of Campus Life and are listed in detail in the Undergraduate Catalog. Specific examples include, but are not limited to:

- Cheating: Copying from another student's test paper, laboratory report, other report, or computer files and listings; using, during any academic exercise, material and/or devices not authorized by the person in charge of the test; collaborating with or seeking aid from another student during a test or laboratory without permission; knowingly using, buying, selling, stealing, transporting, or soliciting in its entirety or in part, the contents of a test or other assignment unauthorized for release; substituting for another student or permitting another student to substitute for oneself.
 - Plagiarism: The appropriation, theft, purchase or obtaining by any means another's work, and the unacknowledged submission or incorporation of that work as one's own offered for credit. Appropriation includes the quoting or paraphrasing of another's work without giving credit therefore. I may use Turnitin for plagiarism detection. Collusion: The unauthorized collaboration with another in preparing work offered for credit.
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TCU students are prohibited from sharing any portion of course materials (including videos, PowerPoint slides, assignments, or notes) with others, including on social media, without written permission by the course instructor. Accessing, copying, transporting (to another person or location), modifying, or destroying programs, records, or data belonging to TCU or another user without authorization, whether such data is in transit or storage, is prohibited. The full policy can be found at: <https://security.tcu.edu/polproc/usage-policy/>.

Violating this policy is considered a violation of Section 3.2.15 of the Student Code of Conduct (this policy may be found in the Student Handbook at <https://tcu.codes/code/index/>), and may also constitute Academic Misconduct or Disruptive Classroom Behavior (these policies may be found in the undergraduate catalog at [5](https://tcu.smartcatalogiq.com/current/Undergraduate-</u></p></div><div data-bbox=)

Catalog/Student-Policies/Academic-Conduct-Policy-Details). TCU encourages student debate and discourse; accordingly, TCU generally interprets and applies its policies, including the policies referenced above, consistent with the values of free expression and First Amendment principles.

Netiquette: Communication Courtesy Code

All members of the class are expected to follow rules of common courtesy in all email messages, discussions, and chats. If I deem any of them to be inappropriate or offensive, I will forward the message to the Chair of the department and appropriate action will be taken, not excluding expulsion from the course. The same rules apply online as they do in person. Be respectful of other students. Foul discourse will not be tolerated. Please take a moment and read the following link concerning "netiquette."

<http://www.albion.com/netiquette/>

Participating in the virtual realm, including social media sites and shared-access sites sometimes used for educational collaborations, should be done with honor and integrity:

<http://macaulay.cuny.edu/community/handbook/technology/honorable-technology/>

TCU Online (D2L)

- Access via my.tcu.edu > Student Quick Links > TCU Online
OR login at the following website: d2l.tcu.edu (your username and password will be your TCU network information - the same username and password that you use when you login into my.tcu.edu).
For information about logging into TCU Online, view these instructions:
<http://tcuonline.tcu.edu/kb/how-do-i-log-in/>
- If you have not yet taken the TCU Online Student Tutorial, please do so immediately. To access it, click on the "TCU Online Student Tutorial" on your home page. Follow the instructions. Good luck!
- Technical requirements for using the system: <http://tcuonline.tcu.edu/kb/platform-requirements/>
- If you experience any technical problems while using TCU Online, please do not hesitate to contact the HELP DESK (at D2L). They can be reached by email, phone, or chat 24 hours a day, 7 days a week, 365 days a year.

email: helpdesk@d2l.com

phone: **1-877-325-7778**

chat: **Chat** is available within **TCU Online**. Look for the Chat widget on My Home.

If you are working with the helpdesk to resolve a technical issue, make sure to keep me updated on the troubleshooting progress.

For information about logging into TCU Online, view these instructions:

<http://tcuonline.tcu.edu/kb/how-do-i-log-in/>

If you have a course-related issue (course content, assignment troubles, quiz difficulties) please contact the professor during office hours or by email.

I will use TCU Online for several purposes including:

- I will post students' grades
- I will make announcements and address commonly asked questions,
- I will post important course information including assignments, data and projects
- You will submit assignments
- Other necessary purposes

It is your responsibility to make sure that all information (including your e-mail address) is current in your student profile on this website. I highly encourage you to regularly check your e-mail, especially near exam time. However, you are ultimately responsible for anything posted to this website.

TCU Campus Resources for Students

TCU Campus Resources for Students: Many resources exist on the TCU campus that may be helpful to students:

- ❖ Mary Coats Burnett Library (817-257-7117);
 - ❖ Center for Academic Services (817-257-7486, Sadler Hall. 1022);
 - ❖ The TCU Center for Writing (817-257-7221, Reed Hall 419);
 - ❖ Student Development Services (817-257-7855, BLUU 2003);
 - ❖ Office of Religious & Spiritual Life (817-257-7830, Jarvis Hall);
 - ❖ Campus Life (817-257-7926, Sadler Hall 2006);
 - ❖ The Counseling, Testing, and Mental Health Center (817-257-7863, Samuelson Hall).
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Anti-Discrimination and Title IX Information

Statement on TCU's Discrimination Policy

TCU prohibits discrimination and harassment based on age, race, color, religion, sex, sexual orientation, gender, gender identity, gender expression, national origin, ethnic origin, disability, predisposing genetic information, covered veteran status, and any other basis protected by law, except as permitted by law. TCU also prohibits unlawful sexual and gender-based harassment and violence, sexual assault, incest, statutory rape, sexual exploitation, intimate partner violence, bullying, stalking, and retaliation. We understand that discrimination, harassment, and sexual violence can undermine students' academic success and we encourage students who have experienced any of these issues to talk to someone about their experience, so they can get the support they need.

- [Review TCU's Policy on Prohibited Discrimination, Harassment and Related Conduct or to file a complaint: https://titleix.tcu.edu/title-ix/.](https://titleix.tcu.edu/title-ix/)

- [Learn about the Campus Community Response Team and Report a Bias Incident: https://titleix.tcu.edu/campus-community-response-team/](https://titleix.tcu.edu/campus-community-response-team/)

Statement on Title IX at TCU

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep any information your share private to the greatest extent possible. However, I have a mandatory reporting responsibility under TCU policy and federal law and I am required to share any information I receive regarding sexual harassment, discrimination, and related conduct with TCU's Title IX Coordinator. Students can receive confidential support and academic advocacy by contacting [TCU's Confidential Advocate in the Campus Advocacy, Resources & Education office](https://care.tcu.edu/) at <https://care.tcu.edu/> or by calling (817) 257-5225 or the [Counseling & Mental Health Center](https://counseling.tcu.edu/) at <https://counseling.tcu.edu/> or by calling (817) 257-7863. [Alleged violations can be reported to the Title IX Office](https://titleix.tcu.edu/student-toolkit/) at <https://titleix.tcu.edu/student-toolkit/> or by calling (817) 257-8228. Should you wish to make a confidential report, the Title IX Office will seek to maintain your privacy to the greatest extent possible, but cannot guarantee confidentiality. Reports to law enforcement can be made to the Fort Worth Police Department at 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

Obligations to Report Conduct Raising Title IX or VAWA Issues

Mandatory Reporters: All TCU employees, except Confidential Resources, are considered Mandatory Reporters for purposes of their obligations to report, to the Coordinator, conduct that raises Title IX and/or VAWA (Violence Against Women Act) issues.

Mandatory Reporters are required to immediately report to the Coordinator information about conduct that raises Title IX and/or VAWA issues, including any reports, complaints or allegations of sexual harassment, discrimination and those forms of prohibited conduct that relate to nonconsensual sexual intercourse or contact, sexual exploitation, intimate partner violence, stalking and retaliation involving any member of the TCU community, except as otherwise provided within the [Policy on Prohibited Discrimination, Harassment and Related Conduct](#).

Mandatory Reporters may receive this information in a number of ways. For example, a complainant may report the information directly to a Mandatory Reporter, a witness or third-party may provide information to a Mandatory Reporter, or a Mandatory Reporter may personally witness such conduct. A Mandatory Reporter's obligation to report such information to the Coordinator does not depend on how he/she received the information. Mandatory Reporters must provide all known information about conduct that raises Title IX or VAWA issues to the Coordinator, including the identities of the parties, the date, time and location, and any other details. Failure of a Mandatory Reporters to provide such information to the Coordinator in a timely manner may subject the employee to appropriate discipline, including removal from a position or termination of employment.

Mandatory Reporters cannot promise to refrain from forwarding the information to the Coordinator if it raises Title IX or VAWA issues or withhold information about such conduct from the Coordinator. Mandatory Reporters may provide support and assistance to a complainant, witness, or respondent, but they should not conduct any investigation or notify the respondent unless requested to do so by the Coordinator.

Mandatory Reporters are not required to report information disclosed (1) at public awareness events (e.g., “Take Back the Night,” candlelight vigils, protests, “survivor speak-outs,” or other public forums in which students may disclose such information (collectively, public awareness events); or (2) during an individual’s participation as a subject in an Institutional Review Board approved human subjects research protocol (IRB Research). TCU may provide information about Title IX rights and available resources and support at public awareness events, however, and Institutional Review Boards may, in appropriate cases, require researchers to provide such information to all subjects of IRB Research.

Relevant reporting phone numbers are: 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

Student Access and Accommodation

Texas Christian University affords students with disabilities reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. To be eligible for disability-related academic accommodations, students are required to register with the TCU Office of Student Access and Accommodation and have their requested accommodations evaluated. Students are required to provide instructors an official TCU notification of accommodation approved through Student Access and Accommodation. More information on how to apply for accommodations can be found at <https://www.tcu.edu/access-accommodation/> or by calling Student Access and Accommodation at (817) 257-6567. Accommodations are not retroactive and require advance notice to implement.

Emergency Response Information

Please review [TCU’s L.E.S.S. is More public safety video](https://publicsafety.tcu.edu/less-is-more/) to learn about Lockdown, Evacuate, and Seek Shelter procedures. (<https://publicsafety.tcu.edu/less-is-more/>)

[TCU’s Public Safety website](https://publicsafety.tcu.edu/) provides maps that show our building’s rally point for evacuation and the seek shelter location. (<https://publicsafety.tcu.edu/>)

In the event of an emergency, call the TCU Police Department at **817-257-7777**.

Download the [Frogshield Campus Safety App](https://police.tcu.edu/frogshield/) on your phone. (<https://police.tcu.edu/frogshield/>)

TCU Mission Statement

To educate individuals to think and act as ethical leaders and responsible citizens in the global community.

This syllabus is not a legal contract.

| Date | Topic | Preparation/Reading Assignment | Learning Activity | Assignment Due |
|---------------|---|---|--|------------------------------------|
| Week 1 | 1. Course Introduction 2. Software Installation 3. Overview of Data Analytics & Databases | BSU Entity Relationship Diagram Bibitor ER Diagram BSU Database "Black Squirrel" | Writing SQL queries following the "Black Squirrel" textbook | |
| | ER Diagramming | Tarrant County Youth Soccer League Netflix Business Model | Creation of ER Diagrams including cardinalities | |
| Week 2 | Intro to SQL -Select Statements -Select statement clauses | UARK Teradata Server connect using VMWare | Extracting data from the Dillard's Database | LA #1 Chapter 1 |
| | Intro to writing R Script | Installation of R and R Studio | Basic Data Analytics: Chapter 1-Data Understanding Basic Data Analytics: Chapter 2-Intro to SQL | LA #2 Chapter 2 |
| Week 3 | R Scripting with SQL | Spotify Playlist | RSpotify and SpotifYR | LA #3 Bibitor Audit |
| | 1. Equity Valuation 2. Linear Regression Modeling 3. Hypothesis Testing 4. Decision Making | "Analyzing Equity Portfolios in R" | Using R script to create a linear regression model to predict stock prices | LA #4 Sam's Club Case Study |
| Week 4 | Quiz | | | Quiz #1: SQL |
| | Linear Regression Modeling and Monte Carlo Simulation | "Analyzing Equity Portfolios in R" | Using Monte Carlo Simulation to Predict Outcomes | |
| Week 5 | Time Series Data Intro to Alteryx | "ARIMA and ETS Models" Installation of Alteryx Clusoe Company | Forecasting Stock Prices Three Way Match | LA #5 Quagmire AP Audit: |
| Week 6 | Exception Based Auditing with Alteryx | "ELM Manufacturing Co. AR Audit" | Revenue Cycle Audit | |

| | | | | |
|--------|---------------------|-----------------------|--|---|
| | Logistic Regression | | Predicting Company Store Sales | LA #6 ELM Audit |
| Week 7 | Sports Models | Poisson Distributions | Hockey & Soccer Games Football Totals | LA #7 Alteryx Workflow- Analytic Dataset |
| | Visualizations in R | Shiny | | LA #8 Time Series Forecast |
| Week 8 | Quiz | | | Quiz #2: Alteryx, R, and/or SQL |