

The University of Texas at El Paso



**Data Drive Decision Making (Online)**

Course Number: IE 4395 / IE5390

Spring 2021

**Class Details:**

**Instructor** : Sreenath Chalil Madathil, Ph.D.  
**Schedule** : June 7<sup>th</sup>, 2021 – July 30<sup>th</sup>, 2021  
**Location** : Online  
**Office Hours** : MW 3:30PM to 4:30 PM  
: Blackboard using Zoom  
: By Appointment  
**Email** : [schalil@utep.edu](mailto:schalil@utep.edu)  
**TA Contact** : Prajina Edayath  
: [pedayath@miners.utep.edu](mailto:pedayath@miners.utep.edu)  
**TA Office Hours** : M-F 10: 30 AM to 11:30 AM in Blackboard Collaborate

**Course Description:**

Data Driven Decision Making compile raw data from various inputs, organize the data, and help decision makers analyze the data and generate meaningful insights to solve their problems and make better decisions. This course, a completely online class, guides design decision support systems for industries and service systems based on operations research models. Includes use of spreadsheets, databases, and integrated software development environments to implement decision support systems (DSS). This course covers methods, tools, and techniques for designing the functional aspects of enhanced decision making, developing DSS interfaces, converting raw data in to actionable insights.

**Course Objectives:**

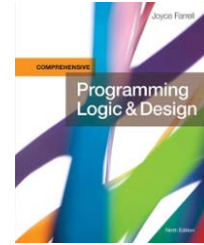
After completion of this course, students will be able to:

- Design useful and usable OR-based DSSs for decision-makers and operators in your (future) company
- Develop DSSs with appropriately sophisticated core technologies integrated with MS office tools and are readily available in most organizations and familiar to many
- Use some data science techniques, how they work, and how to apply using trivial software tools such as excel

**Preferred Reference Books:**

- Data Smart: Using Data science to Transform Information into Insights, John W. Foreman, ISBN-13: 978-1118661468

- Programming Logic and Design, Introductory, 9th Edition, Joyce Farrell  
ISBN-10: 1-337-10963-0  
ISBN-13: 978-1-337-10963-5
- Relational Databases and Microsoft Access  
<https://open.umn.edu/opentextbooks/textbooks/442>
- VBA for modelers, 5<sup>th</sup> Edition, Christian S Albright  
ISBN: 978-1-285-86961-2
- Beginning Excel, Noreen Brown, Barbara Lave, Julie Romey, Mary Schatz and Diane Shingledecker  
<https://openoregon.pressbooks.pub/beginningexcel/>



### **Other Reference Books:**

- Smith, Excel VBA: A Step-By-Step Guide to Learn and Master Excel VBA Programming  
[https://www.amazon.com/Excel-VBA-Step-Step-Programming/dp/1722122129/ref=tmm\\_pap\\_swatch\\_0?encoding=UTF8&qid=1534175534&sr=8-6](https://www.amazon.com/Excel-VBA-Step-Step-Programming/dp/1722122129/ref=tmm_pap_swatch_0?encoding=UTF8&qid=1534175534&sr=8-6)
- Friedrichsen, Microsoft® Access 2013: Illustrated Brief, 1st Edition  
[https://www.amazon.com/Microsoft-Access-2013-Illustrated-Brief/dp/1285093291/ref=sr\\_1\\_6?ie=UTF8&qid=1534175833&sr=8-6&keywords=Lisa+Friedrichsen](https://www.amazon.com/Microsoft-Access-2013-Illustrated-Brief/dp/1285093291/ref=sr_1_6?ie=UTF8&qid=1534175833&sr=8-6&keywords=Lisa+Friedrichsen)

### **Class Attendance:**

The students are expected to participate in all class sessions and activities. It is the responsibility of the student to inform each instructor of extended absences. When, in the judgment of the instructor, a student has been absent/non-participant to such a degree as to impair his or her status relative to credit for the course, the instructor can drop the student from the class with a grade of W before the course-drop deadline or with a grade of F after the course-drop deadline.

### **Laptop Information:**

This course has been designated as a laptop course. Most class activities will be conducted using laptops. You will need to bring your laptop every class unless otherwise noted explicitly. In general, I assume that each student has a laptop with the appropriate software.

### **Required Software and Computing Resources**

You will need to have/install Excel, Access, Word, and PowerPoint Professional 2013 or 2016 or later. You must have this installed, even if you have a Mac, by the first Monday class of the semester. If you have a Mac, you must use an emulator such as VMWare to be able to use Office 2013 or Office 2016 or later for PCs (VBA is VERY problematic on a Mac, unfortunately).

You also must be able to create PDF files. One way to do this is to print to PDF.

If you encounter technical difficulties beyond your scope of troubleshooting, please contact the [Help Desk](#) as they are explicitly trained to assist with students' technological needs.

**Exam Make-up Policy:**

There will be **NO** make-up policy for exams, homework, and quizzes in this class.

**Late-Submission Policy:**

All late submissions for homework, poster presentation, and exams are automatically awarded zero points.

**Course Materials and Office Hours:**

I will post lectures, links to other relevant reading materials, homework questions, and other relevant details on Blackboard. Students **MUST** submit all deliverables through Blackboard. Paper submissions will not be accepted. The office hours are on Monday and Wednesday between 3:30 PM and 4:30 PM in Blackboard using Zoom. However, I can also meet with you using these video conferencing services (such as Blackboard Collaborate, Microsoft teams) based on a pre-determined meeting time.

**Evaluation:**

I expect each deliverable (assignments, activities, projects, examinations etc.) to be neat, professional, and submitted on time. I reserve the right to penalize unprofessional responses to any deliverables up to including awarding a zero (0) for the assignment. Late work will not be accepted.

All assignments are due in Blackboard by the specified time on the due date as prescribed by the instructor. Students may not use/re-use any materials from previous semester offerings of this course.

I evaluate your learning of these materials based on the below deliverables throughout the course progress.

<b>Deliverables</b>	<b>Weight</b>
Assignments	25%
Activities	20%
Linkedin Certifications	25%
Mini-Project	20%
Examinations	10%

**Grades:**

<b>Grade</b>	<b>Weighted Score</b>
A	$\geq 90$
B	$< 90$ and $\geq 80$
C	$< 80$ and $\geq 70$
D	$< 70$ and $\geq 60$
F	$< 60$

**Netiquette:**

- Always consider the audience. Remember that members of the class and the instructor will be reading any postings.

- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a F2F situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted in these online spaces is intended for classmates and professors only. Please do not copy documents and paste them to a publicly accessible website, blog, or other area. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).

### **Civility Statement:**

Please be respectful of all students' right to learn without disruptions. In line with this statement, please make an active effort to keep the talking to a minimum during lectures and presentations. Also, make an active effort to either turn cell phones off or turn them to vibrate mode prior to the start of class. Appointments with the instructor should be made in advance.

### **Center for Accommodations and Support Services:**

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services. Schedule an appointment with the professor(s) during the first week of classes to clarify any accommodation needs and resolve all questions pertaining to course assignments and the classroom environment. Students should present a Faculty Accommodation Letter for Student Disability Services when they meet with instructors. Accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

### **Academic Integrity:**

The University of Texas at El Paso prides itself on its standards of academic excellence. In all matters of intellectual pursuit, UTEP faculty and students must strive to achieve excellence based on the quality of work produced by the individual. In the classroom and in all other academic activities, students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. It is imperative, therefore, that the members of this academic community understand the regulations pertaining to academic integrity and that all faculty members insist on adherence to these standards.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes is not limited to cheating; plagiarism; collusion; the submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; and any act designed to give unfair advantage to a student or the attempt to commit such acts. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic

dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more [HOOP: Student Conduct and Discipline](#). Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP) and available in the Office of Student Life and the homepage of the Office of Student Life at [www.utep.edu/dos](http://www.utep.edu/dos), can result in sanctions ranging from disciplinary probation, to failing a grade on the work in question, to a failing grade in the course, to suspension or dismissal, among others.

### **Student Resources:**

UTEP provides a variety of student services and support:

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [Military Student Success Center](#): UTEP welcomes military-affiliated students to its degree programs, and the Military Student Success Center and its dedicated staff (many of whom are veterans and students themselves) are here to help personnel in any branch of service to reach their educational goals.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

### **Email**

You are responsible for all email messages sent by the instructor. Public messages intended for the entire class are sent automatically to campus accounts. If the student elects to forward campus mail to an off-campus account, the student remains responsible for these messages regardless of whether they are successfully delivered.

I will be communicating a variety of important course information to you via email, so I would encourage you to get in the habit of regularly checking your email account. At minimum, you should check your email at least once per day, every day.

**Course Outline (Tentative)**

<b>Week</b>	<b>From</b>	<b>To</b>	<b>Lecture</b>
W01	6/7/2021	6/12/2021	L01 Course Introduction
			L02 Excel Basics
			L03:Intermediate Excel Skills
W02	6/13/2021	6/19/2021	L04: Advanced Excel Skills
			L05: Macros and VBA Introduction
			L06:Getting used to VBA
W03	6/20/2021	6/26/2021	L07: VBA and the User
			L08: Objects, Properties and Methods
W04	6/27/2021	7/3/2021	L09:VBA, Excel and the Logic
			L10:Debugging and error handling
			L11: Modular code, Sub and Function
W05	7/4/2021	7/10/2021	L12:Arrays and user defined types
			L13: User Forms
W06	7/11/2021	7/17/2021	L14: Access Introduction
			L15: SQL
W07	7/18/2021	7/24/2021	L16: VBA, Excel and Access
			L17: Data Clustering
W08	7/25/2021	8/1/2021	Final Mini Project

PS: I reserve the right to change the course outline based on the course progress.

## Course Map

This section describes the course map and mentions a time commitment as described below

4-6 hours for readings/multimedia

4-6 hours for activities

3-4 hours for assignment

OBJECTIVES	ACTIVITIES	READINGS / MULTIMEDIA	ASSESSMENTS	INTERACTIONS	OUTCOMES	COMPLETION TIME
<b>Week 1</b>						
<ul style="list-style-type: none"> <li>• <b>Course Overview</b></li> <li>• <b>Introduce yourself</b></li> <li>• <b>Introduction to Basic Excel Functions</b></li> <li>• <b>Introduction to programming</b></li> <li>• <b>Enable VBA</b></li> </ul>	<ul style="list-style-type: none"> <li>• Use Microsoft help on using HLOOKUP</li> <li>• Open excel and perform examples</li> <li>• Pivot tables</li> <li>• Solver</li> </ul>	<p><b>Watch:</b></p> <ul style="list-style-type: none"> <li>• Presentation with screenshot video capture</li> <li>• "Introduction to programming" videos</li> <li>• Youtube videos on tips and tricks</li> </ul> <p><b>Read:</b></p> <ul style="list-style-type: none"> <li>• Decision support system papers</li> <li>• Applications of VBA</li> <li>• Chapter 1 of Beginning Excel textbook</li> </ul>	<p>Assessment set 01:</p> <ul style="list-style-type: none"> <li>• Basic and advanced formulas</li> <li>• Screenshot of VBA enabled</li> <li>• Pivot table example</li> <li>• Quizzes through Yuja</li> </ul>	<ul style="list-style-type: none"> <li>• Email</li> <li>• Microsoft Teams</li> <li>• Discussion board</li> </ul>	<ul style="list-style-type: none"> <li>• Get to know the instructor</li> <li>• Familiarize with the course topics</li> <li>• Work around with Excel</li> <li>• Enable VBA</li> </ul>	
<b>Week 2</b>						
<ul style="list-style-type: none"> <li>• <b>Define variables and types</b></li> <li>• <b>Understand data handling and manipulation</b></li> <li>• <b>Decision making</b></li> </ul>	<ul style="list-style-type: none"> <li>• Record a macro</li> <li>• Visual basic editor</li> <li>• Define variables and ranges</li> <li>• Use message box</li> </ul>	<p><b>Watch:</b></p> <ul style="list-style-type: none"> <li>• Presentation with screenshot capture</li> <li>• "Advanced programming videos"</li> </ul>	<p>Assessment set 02:</p> <ul style="list-style-type: none"> <li>• Sample codes</li> <li>• Assessment of WHILE, IF and FOR, and</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft discussion group</li> <li>• Email</li> <li>• Microsoft Teams</li> <li>• Discussion board</li> </ul>	<ul style="list-style-type: none"> <li>• Define various variable types</li> <li>• Work around the VBA</li> </ul>	<p>4-6 hours for readings/multimedia</p> <p>4-6 hours for activities</p> <p>3-4 hours for assignment</p>

<ul style="list-style-type: none"> <li>• <b>Errors and Debugging</b></li> </ul>	<ul style="list-style-type: none"> <li>• Learn about loops and conditions</li> <li>• Debugging code</li> </ul>		<p>CASE conditions</p> <ul style="list-style-type: none"> <li>• Quizzes through Yuja</li> </ul>		<p>editor and run codes</p> <ul style="list-style-type: none"> <li>• Display results on a new window or spreadsheet</li> <li>• Defines loops and conditions and how they work</li> <li>• Step-by-step debugging procedure</li> </ul>	
<b>Week 3</b>						
<ul style="list-style-type: none"> <li>• <b>Modular codes</b></li> <li>• <b>Arrays and types</b></li> <li>• <b>User forms</b></li> <li>• <b>Access to database</b></li> </ul>	<ul style="list-style-type: none"> <li>• Define Sub routines</li> <li>• Passing arguments</li> <li>• Function subroutines</li> <li>• Design userforms</li> <li>• Importing data from a database</li> <li>• Importing CSV files</li> <li>• Testing database interface</li> </ul>	<p><b>Watch:</b></p> <ul style="list-style-type: none"> <li>• Presentation with screenshot capture</li> <li>• Decision making videos</li> </ul> <p><b>Read:</b></p> <ul style="list-style-type: none"> <li>• Chapters 1-4 from "Relational database and microsoft access" textbook</li> </ul>	<p>Assessment set 03:</p> <ul style="list-style-type: none"> <li>• Functions</li> <li>• Display variables using arguments</li> <li>• An example with a Userform with populated data</li> <li>• Identify database connections</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft discussion group</li> <li>• Email</li> <li>• Microsoft Teams</li> <li>• Discussion board</li> </ul>	<ul style="list-style-type: none"> <li>• Define the scope of the variables</li> <li>• Design and code a userform</li> <li>• Define key features of a database</li> </ul>	<p>4-6 hours for readings/multimedia</p> <p>4-6 hours for activities</p> <p>3-4 hours for assignment</p>
<b>Week 4</b>						
<ul style="list-style-type: none"> <li>• <b>SQL queries</b></li> <li>• <b>Queries in VBA</b></li> <li>• <b>MS access operators</b></li> </ul>	<ul style="list-style-type: none"> <li>• Define and test SQL queries</li> <li>• Display results in excel</li> <li>• Debugging</li> </ul>	<p><b>Watch:</b></p> <ul style="list-style-type: none"> <li>• Presentation with screenshot capture</li> </ul>	<p>Assessment set 04:</p> <ul style="list-style-type: none"> <li>• Miniproject</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft discussion group</li> <li>• Email</li> <li>• Microsoft Teams</li> <li>• Discussion board</li> </ul>	<ul style="list-style-type: none"> <li>• Connect a database to excel</li> <li>• Use SQL queries to</li> </ul>	<p>4-6 hours for readings/multimedia</p> <p>4-6 hours for activities</p>



		<ul style="list-style-type: none"><li>• "Advanced programming videos"</li></ul> <b>Read:</b> <ul style="list-style-type: none"><li>• Chapters 5-6 from "Relational database and microsoft access" textbook</li></ul>			transfer data between excel and the database	3-4 hours for assignment
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