THE OHIO STATE UNIVERSITY

**FCOB Accounting and MIS / 4650**
**Decision Support Systems**
**Autumn Term 2023**

## Instructor:

Name: David G. Trimm, MEng, ACGI
Department: Accounting and MIS
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Office Hours: Wednesdays, 11am to 1pm

## Class Meeting Schedule:

Tuesdays and Thursdays, 5:30pm to 6:50pm, Knowlton Hall 190.

## Course Description:

Knowledge is now often cited as a fourth (or fifth!) factor of production along with Land, Labor and Capital (and possibly Entrepreneurship). 90% of the information in the world today was created in the last two years, and the pace of creation is only accelerating, with every click, gesture, login, Bluetooth beacon and phone location generating more.

Buried in the raw data are the keys to the next big opportunity, or a chance to save big, but being able to extract, transform, store, process, interpret and present that data presents a huge challenge to most businesses. Artificial intelligence, big data techniques, cloud services, new tools and customer demands for insight and oversight mean that interest in this task has moved from the back room to the boardroom.

***If you are entering the world of business this year or next then you'll need a broad understanding of the value of information to organizations, and how they set about acquiring, storing and processing it in order to extract that value.***

There are four broad *sections* to the course to help you achieve this:

(i) Understanding the components, concepts, trends and benefits of decision support systems and information delivery.
(ii) Planning for, building, and implementing the tools required as part of a designed architecture.
(iii) Interpreting the data and converting it into information and knowledge
(iv) A practical group project to build and demonstrate a data warehouse and the use of information delivery tools on top of it.

Throughout the course, we'll use case studies of real companies and technologies – those that have been successful and those which have not. We'll examine real-life examples drawing on my personal experiences and (hopefully) those of some guests

## Course Learning Outcomes:

By the end of this course, students should successfully be able to:

- Understand and describe the major features of decision support systems (DSS) and how they deliver value to organizations.

- Understand the different technologies which are available to designers of DSS and be able to describe the circumstances under each of them would be used most appropriately.
- Apply the steps covered in the course to design, develop and implement a simple data warehouse and the associated query tools to produce information and insights from the raw data.

## Course Materials:

Required: Data Warehousing Fundamentals for IT Professionals by Paulraj Ponniah, 2nd Ed, John Wiley & Sons; ISBN: 978-0-470-46207-2. Online version is available (for free) through OSU Library Safari Books Online.

Recommended: We will also be using articles from The Economist magazine. Set up a free account at www.economist.com to be able to access up to 3 free full articles each week

## How This Course Works:

**Mode of delivery:** The course will be taught live and in-person. There is no online option.
**Pace of activities:** This course is divided into **weekly modules** that are released one week ahead of time. Students are expected to keep pace with weekly deadlines but may schedule their efforts freely within that time frame.
**Credit hours and work expectations:** This is a **3-credit-hour course**. According to Ohio State policy, students should expect around an average of 3 hours per week of time spent on direct instruction (instructor content and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example).
**Attendance and participation requirements:** This course will be delivered via the following mechanisms:

I. Each module of the course will be presented live at the scheduled class time, and, as there is a component of the total grade for the course for attendance and participation, attendance will be recorded using TopHat
II. There will also be an optional weekly "office hours" session (Wednesday 11am to 1pm) during which additional questions can be asked. This allows for more in-depth discussion on course content.
III. Additional individual meetings with the lecturer can be arranged and will probably be held "virtually".
IV. There is a group project which will require you to work as part of a team of three or four members. *During the project you will actually design, develop and implement both a data warehouse and an associated query/OLAP tool.* The project teams will be automatically assigned – it's a great opportunity to meet and work with people who you haven't worked with before.
V. All members of the team will receive the same grade, *though I reserve the right to modify individual grades in cases where a team member has clearly not participated at the required level in his/her team's efforts.*
VI. The group project will require a brief presentation by each team. This isn't a presentation skills class, so the grading will be primarily based on the quality of the thinking behind the content. However, it is an opportunity for you to practice and develop those all-important presentation skills, and I'll provide specific feedback to help you. We'll get the projects going after section (i) of the course has been covered, but presentation will be at the back end of the semester and submission won't be until Semester-end for all projects.
VII. Extra credit – there are no extra credit assignments.
VIII. We'll use Carmen throughout for communication and submission. Please…do not be late on submissions – the required timing will always be clear (that's down to me) but will typically be

11:59 on the day the assignment is due. Points will be lost if submissions are late, up to and including the entire grade for the assignment

IX. All submissions (Assignments, Project Reports, Discussion Board posts, the Mid-Term and Final) will be subject to a plagiarism check using TurnItIn

**General expectations for those Joining this class:** While the textbook will be used as a guiding structure for the course topics, we'll spend a lot of time discussing other materials in class: expect to participate actively in class discussion. The lectures are not a repeat of materials in the book, but rather use the book as a baseline – other materials, including press articles, will form part of the preparation for our class time together, and will probably feature in mid-terms and finals: it *will* be important that you're familiar with the relevant content for each session.

## Course technology:

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Required technical skills and equipment.

- Basic computer, email and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the Canvas Student Guide.
- TopHat
- Computer: A current Mac (OS X at a currently supported level) or PC (Windows 10 or 11) are required, though it *should* be possible to complete the course using a machine running Linux or a Chromebook – extra kudos, and a little extra support (though no extra credit) will be supplied for those picking these last two options.
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication
- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Full instructions for downloading and installation can be found at go.osu.edu/office365help.
- You will need access to a **database engine** to complete your project. You have a wide choice of tools for this (including using MS Access, but NOT Excel), and I can provide assistance to you if you choose to use RDS and S3 buckets on Amazon Web Services. You will also need to use some form of data presentation (OLAP) tool. **Tableau** is available to you under a student license for free, but other tools can be used as well.

- In general this class is NOT a training course in Tableau, SQL, AWS or any specific technology, and while I can and will provide help and pointers, you will also need to spend time getting familiar with the tools you are choosing to use to complete your project. Having said that, you certainly do not need to be a computer science whiz to get it done either, just open to learning some new tools and techniques

Carmen access
You will need to use BuckeyePass multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click **Enter a Passcode** and then click the **Text me new codes** button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

## Grading and Evaluation:

Graded assignments may come in three forms, and students should note the expectations for each in the descriptions of our class assignments below.

- **Independent Work ( ):** Strictly non-collaborative, original-individual work. You may discuss this assignment only with your instructor. Discussions with other individuals, either in person or electronically, are strictly prohibited.
- **Collaboration Required ( ):** An explicit expectation for collaboration among students either in-class or outside (i.e. group work).
- **Optional-Collaboration ( ):** Students are permitted, but not required, to discuss the assignment or ideas with each other. However, all submitted work must be one's original and individual creation.

| Course Element | Points / Weight | Assignment Type |
|---|---|---|
| Class Attendance, discussion board participation and (if used) quizzes | 20% | |
| Assignments | 20% | |
| Group Project | 20% | |
| Exams (take-home format) | 40% | |
| **MAXIMUM COURSE POINTS** | 100% | |

## Course Assignments:

- Assignments are designed to develop and demonstrate your understanding of, and critical thinking associated with, the material. This will be part of the points awarded for the class, so you'll need to complete them and submit them. All assignments (including the mid-term and final exams) will be in the form of short-answer essays, with approximately a week to complete them. There are no multiple-choice assignments.
- Formatting – Times New Roman, 12pt, double-spaced on everything please. A small amount of credit on each submission is for clear formatting.
- Rubric – each assignment (and the exams, and the project) will have a rubric attached to it in Carmen which should clearly show you what I'm looking for in grading the papers: PLEASE READ THEM!

## Grading Scale:

- We’re following the OSU Standard Grading Scale (percentages). A = 93-100, A- = 90-92.9, B+ = 87-89.9, B = 83-86.9, B- = 80-82.9, C+ = 77-79.9, C = 73-76.9, C- = 70-72.9, D+ = 67-69.9, D = 63-66.9, D- = 60-62.9, F = below 60.

## Planned Course Schedule:

| Module (Week) | Topics Headline | Assignments |
|---|---|---|
| 1 (8/20) | Data warehousing and Decision Support Systems Introduction: building blocks and trends | |
| 2 (8/27) | Gathering requirements, Planning and project management | |
| 3 (9/3) | Architectural components and infrastructure of a data warehouse. | |
| 4 (9/10) | Metadata | Assignment 1 |
| 5 (9/17) | Dimensional Modeling | |
| 6 (9/24) | Data extraction, transformation, and loading: "ETL" | Project Selections Due |
| 7 (10/1) | Data Quality | |
| (10/8) | Mid-term exam – no lectures | Mid Term |
| 8 (10/15) | Matching information and Users | |
| 9 (10/22) | OLAP | |
| 10 (10/29) | Web Enabled Analytics | Assignment 2 |
| 11 (11/5) | Data mining | |
| 12 (11/12) | Data Warehouse implementation and maintenance | Project presentations groups 1 & 2 |
| 14 (11/19) | Thanksgiving Break | |
| 15 (11/26) | Project Presentations | Groups 3,4,5 & 6 |

| Module (Week) | Topics Headline | Assignments |
|---|---|---|
| 16 (12/3) | Project Presentations | Groups 7, 8<br>Final Exam |

## Academic integrity:

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct (https://trustees.osu.edu/bylaws-and-rules/code) and this syllabus may constitute Academic Misconduct (https://oaa.osu.edu/academic-integrity-and-misconduct)

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University, or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

## Disability Services:

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue

## Safety and health requirements:

All teaching staff and students are required to comply with and stay up to date on all University safety and health guidance, which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will be warned first and disciplinary actions will be taken for repeated offenses.

## Grievances and Solving Problems:

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, associate dean for programs in the college, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department

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