THE OHIO STATE UNIVERSITY
FISHER COLLEGE OF BUSINESS

BUSOBA 3331

x-listing: BUSOBA 4331

Business Analytics: Data Management and Descriptive Analysis

Sem: Spring 2025 **Class Day/Time:** Tu/Th 12:45-2:05 **Room:** Schoenbaum 219

Instructor:	Dr. Elliot Bendoly	**E-mail:**	Bendoly.2@osu.edu
Office Hours:	**Via Zoom** M 9-10am, T/Th 10:30-11:30, or by appt.	**Office:**	Fisher Hall 642 (614-688-1841)

E-mail me whenever you want. I might just have a simple answer for you that I can share via that email. I strongly encourage face-to-face / zoom on topics that you feel need more attention.

Course Description:
How do effective managers develop good solutions in highly complicated and risky settings? They develop and rely on analytical tools and frameworks to assist them. The effectiveness of these efforts depends on (1) an ability to describe real-world problems in terms that technology can assist with, (2) the ability to portray/visualize these translations and their data in ways that enhance the understanding of problem dynamics, (3) the ability to describe the robustness of these solutions subject to risk, (4) the ability to clearly convey the justification and practicality of final solutions to others. Whereas these skills are often assumed to be distributed among multiple roles in a firm, managers competent in all four are at an advantage. Still greater advantage comes from (5) an ability to develop tools that augment/facilitate these activities for yourself, your co-workers and/or clients. This course is designed with the goal of equipping students with competencies in each of the above skill sets – the intended product being an individual capable of developing analytically rigorous decision support tools, catered to specific managerial environments, which can be easily handed off for robust application by a range of intended users in those environments.

Learning course outcomes: *By the end of this course, students should.*

- Understand how to organize, manipulate and present data and results
- Solve problems in an analytical, innovative and integrative fashion
- Leverage tools/methods that are highly accessible and complementary

Pre-Req's: Econ 2001.01/2002.01/equiv; Math 1152/equiv; CSE 2111 or equiv.
Course Format: In-class Lecture + Laboratory; On-line office hours
All students **must have access to a PC**, your own or in a lab like Mason Hall, or AWS (Amazon Workspace), or a Mac running Parallels / Boot camp.
All student must join the "Excel Blackbelts" forum

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.

Required Texts/Materials:
Excel Basics to Black Belt: An Accelerated Guide to Decision Support Designs (3rd Edition)
ISBN (14): 978-1108768641 Author(s): Bendoly Year: 2020 Publisher: Cambridge
(Optional) **Visual Analytics for Management: Translational Science and Applications in Practice**
ISBN (14): 978-1138190726 Authors(s): Bendoly & Clark Year: 2017 Publisher: Routledge/T&F

Evaluation Criteria:

Graded Components	% of Total	Type
In-class Quizzes	25%	N
Homework Assignments	25%	N
Course Project items	30%	C
In-class Participation	20%	O

(See remaining pages for Details/Due dates)

Requirements for each form of graded component.
Failing to follow these will represent academic misconduct. See below.

Independent Work [N]: Strictly non-collaborative, original individual work. You may discuss this assignment with your instructor only. Discussions with other individuals, either in person or electronically, are strictly prohibited.

Collaboration Required [C]: An explicit expectation for collaboration among students either in class or outside of class (i.e., group work).

Collaboration Optional [O]: 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.

Academic Conduct:
If a student is suspected of, or reported to have committed, academic misconduct in this course, I am obligated by University Rules to report my suspicions to COAM. If you have questions about the above policy or what constitutes academic misconduct in this course, please contact me. See OSU Prohibited Conduct – Section 3335-23-04(A)

University Policies, Services and Resources (go.osu.edu/UPolicies)

Course Technology

Examples of decision support system development and use will focus on the **Microsoft Excel** and **Visual Basic for Applications (VBA)** environments. This design is based on at least four motivating forces: 1) Unlike other possible platforms Excel has become a commodity among business firms and students are more likely to find it available for use in the workplace than any other foundation for DSS development, 2) Excel has a number of simple yet effective built-in functions (e.g. Solver, interactive graphics, macros, pivot tables, etc.) which make its use as a flexible and robust platform for DSS development extremely straightforward, 3) The extensive capability for integration built in across Microsoft products provide the potential for wide-spread ubiquitous Excel based decision structures in the workplace (i.e. it can be catered to assist co-workers who use packages like Word or PowerPoint regularly but don't know the first thing about Excel), and 4) Most critically, as a de facto standard, other application environments have been designed to integrate specifically with Excel to extend its features (e.g., via user-developed add-ins, etc.)

Video Capture tools: Although not expressly 'integrated' with Excel, video captures of Excel-based tool-use can be absolutely critical in emphasizing the value and usability of the tool. As part of their project deliverables, students will need to make use of some form of screen/video capturing technology (See Group Projects). Some available packages for free include: WeVideo (https://www.wevideo.com/) & Techsmith (http://www.techsmith.com/products.html). Further, at OSU you should have access to related software through the Digital Union (as well access to people to show you how to use it), including **Zoom**. There are five locations on campus: https://odee.osu.edu/digital-union. MediaSite software may also help: https://resourcecenter.odee.osu.edu/mediasite. Whatever you use, shoot for screen resolution.

Additional support with technology issues: For any issues related to the software used in the course, students should feel free to contact either the instructor of the core or the teaching assistant (TA). For other problems with email, Carmen or any other technology issue, I advise students to contact Ohio State IT support. The support hours are available at ocio.osu.edu/help/hours, and support for more urgent problems is available 24/7. For more information:

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

Basic Technology Skills *(not course-specific)*

The following broad technical skill will also prove desirable for ensuring success in this course:

- Basic computer and web-browsing skills;
- Familiarity with Carmen Canvas and some of its features (e.g. email, discussion board, files tab);
- Familiarity with Carmen Zoom. At some point, the course may be partially taught online. In this sense, students have to be familiar on actions such as: 1) how to join a meeting in Carmen Zoom; 2) how to navigate through the software basic features (e.g. raise hand, mute/unmute, share screen, to mention but a few).

Details of Course Grading

Homework [N] {Strictly independent work. 25% of Course Grade}

There will be up to 3 homework assignments (due by 5pm on the due date via **Carmen** [< 2 MB please, you'll never need more]. SUBMISSIONS should use the 9-digit HW/Quiz code *I provide*: #########.zip, .xlsx or .xlsm. 5% penalties are automatically incurred for submissions missing that deadline + 3% additional penalties per hour late). So please manage your time and start these as soon as they are distributed. These assignments will come in multiple parts and cover several days' worth of material. Although I am comfortable with peer-to-peer discussion of the questions, **students should NOT share advice on approaches to solution**. I expect final work to be independent. I don't want to see work that looks suspiciously like someone else's, and I certainly don't want to see work simply copied from one student and dressed-up differently in another student's submission; such submissions will be deemed violations of the **Honor Code.**

On occasion, when I feel students have had sufficient in-class time to complete work, I will request submissions (e.g. via e-mail) of work developed in class [such requests will be made very infrequently but will not be announced prior to the in-class work period]. This can help ensure checks on originality of work and participation during these in-class periods.

Aside from this, my office hours are designed to provide opportunities for students to ask for guidance on these HWs. Please don't come in with "I have no idea" – Instead approach me with some suggestions of your own for tackling the problem with specifics on where you are stuck. We'll both spend our time better this way. I am always more than happy to help students willing to demonstrate individual effort. *See last page of syllabus for due dates*

Quizzes **[N]** {Strictly independent work. 25% of Course Grade

We will have 4-5 semester quizzes (on the order of 20 minutes each). These quizzes will serve as a check to student preparation for class and absorption of prior material (i.e. having done readings, followed along on in-class examples, etc.). I will always provide study tips in advance of these quizzes to help students focus their time in preparation. Quiz dates are found on the course schedule attached. All students must take all quizzes. Make-ups are granted only in rare occasions, with rationale filed and supported by the program office.

Group Projects **[C]** {Collaboration required. 30% of Course Grade} *See last page of syllabus for due dates*

Each student will be required to contribute to one group project spanning the duration of the semester**. In contrast to homework and quizzes, students are expected to collaborate**.

These group projects can either focus on providing guidance in terms of (***Route-1***) specific solutions (e.g. as possible through optimization, simulation, etc.) or (***Route-2***) enhanced data navigation and visualization (e.g. as possible through sophisticated used of dynamic tables, heuristics, graphics, live feeds, etc.). Students will also have the choice of focusing on the development of either (***Format-A***) a traditional workbook-based dashboard (w/ embedded tables and graphs), or (***Format-B***) a workbook-independent Excel add-in (see *Expectations on User Interface Development* for examples of each). Group projects that are able to professionally display a combination of these features may of course be the most impressive, but at the same time will likely require more effort (and room for greater error). Ultimately "planned scope" by itself can't/shouldn't be automatically equated with or lead to an expectation of a "higher score".

Regardless of focus, all groups must demonstrate the role of 'variability' in their support system. For projects with a focus on **Route-1**, this might mean incorporating variance/uncertainty in either an optimization search mechanism, a post-analysis robustness comparison or in terms of general descriptive both with numbers and graphics. The latter could also be used in projects focusing on ***Route-2***, as can a demonstration of robust fool-proofing against tool misuse, and built-in customizability of data depicted, and graphics displayed.

Project grades are broken into four key deliverables:

(a) Project Outline, (b) Working Application, (c) In-class Presentation, (d) Video Walkthrough

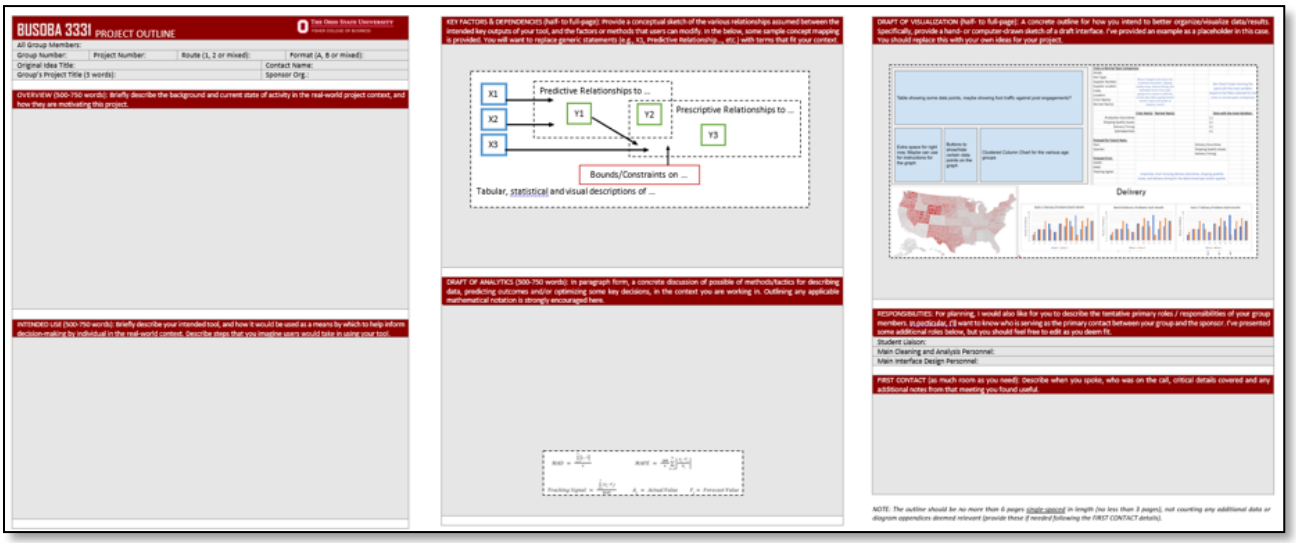
Students must **ALSO schedule and hold (at least) three meetings** with project contacts. **The first meeting must occur prior to the delivery of the Outline: THIS MEANS GROUPS MUST be in touch with sponsors / SMB-A leads at least two weeks before Outlines are due.** The **second** must occur *no more than one week after* instructor feedback on the Outline and should involve getting a hold data (**CONTACT ME** if data is not in hand at that point!), and the **third** must take place just prior to final presentations. All students working with Masters Capstone projects are de facto also in Liaison roles.

Project Outlines {Collaboration required. *25% of Project Grade*}

While the structure of your project will evolve as you work on it, I do want students to think critically about some important elements of their work early on. To motivate that, all groups will first develop a **project outline**. Students should use the ProjectOutline_Grp**X** document (previewed below) to organize these preliminary details.

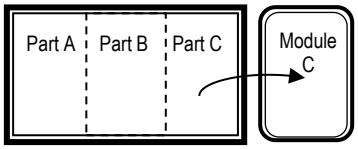
Here is a link to that document: www.experimental-instruments.com/BlackBelts/ProjectOutline_GrpX.docx

** Submit this file with the group's number replacing "**X**" in its title. NOTE: Your final text should be BLACK not RED



Working Applications {Collaboration required. *50% of Project Grade*}

The primary project deliverable (the decision support tool submitted via email (IF < 5 MB, otherwise Google Drive) - *please make sure it runs as expected off of another computer!*) will be due near the end of the semester (*See last page of syllabus for due date*). The evaluation criteria listed on the next page should be taken into consideration when designing and developing your tool. In terms of general content and functionality, the tools must make use of at least two data manipulations (e.g. heuristic, optimization, simulation, query, data cleaning, drill down, etc.). Data used in analysis should be appropriate to the context – some significant portion must have been acquired either through available archives/databases, on-line sources, surveys or real-time observations of activities conducted by the group. The tool should also demonstrate a robustness to use such that variants of the problem dealt with could also be specified by other users for subsequent comparative analysis. Outputs (eg. descriptive summaries, notable constraints to decision making and prescriptions for policy) should be clearly depicted – implied is the leveraging of visualization technique covered in the course.



In the design of your interface, please consider how future versions of your tool might appear if developed for mobile technology. Consider clear functional divisions in your tool that might allow a modular design on a smaller screen.

With your submission, please also feel free to include soft-copies of any additional documentation you feel would be helpful in clarifying your application's use. The quantity and form of such paperwork is all up to your own discretion. If you don't feel any documentation is needed aside from what is embedded in your system, i.e. that your tool is sufficiently straightforward for a user new to it, that's great – ultimately, it's your call.

8- to 10-min In-Class Presentation {Collaboration required. *15% of Project Grade*}

Groups will present their applications in-class during one of the two last weeks of the course. Since these presentations will involve both a brief justification of the work and a fairly comprehensive demonstration of functionality, we will limit the number of presentations per each class session to a predetermined number. Specific presentation timing will be coordinated and made clear in advance. It may be most convenient for teams to hop onto our regular office hour Zoom, and simply drive from their own laptops (I'll project the shared screen). **Dress is business casual**.

2-min Video Walkthroughs {Collaboration required. *10% of Project Grade*}

Groups will also be expected to create a screen capture video presentation (available to me, at least via a public or secure/invite-only posting in YouTube). The presentation should state the problem motivation in the first 15 seconds. It should spend the rest of the time demonstrating the approach taken, and any results / tools functionality and interactivity developed. Students should make use of a **structured slide** (see link) for this presentation, with the slide also submitted to me. You may embed animation or videos within the components of this slide, OR (more ideally) can simply have an image of part of that presentation the slide, and have a shared-link of that video sent to me.

(See Course Technology regarding some viable screen/video capture options)

Such software allows for continuous screen capture capabilities with voice-over recording, as well as editing to create video files that can be posted to YouTube for my viewing (if you wish to share with others, that's your option). These videos serve several purposes: 1) Creating them gives you practice for your in-class presentations; 2) They serve as back-up presentations to me (and others perhaps) in case of technical difficulties during your "live" presentations; 3) They can be used as a virtual component of your personal vitas.

YouTube links should be e-mailed to me. *See last page of syllabus for due date*

How your group's working application and presentation will be evaluated:

Both your final tool and presentation will be evaluated by the following criteria. **Your peers and any professionals sitting as guest judges in the audience will use these factors in providing their ratings of your work. You are expected to be present for all presentations and provide the feedback to all groups (apart from your own).** I will take those ratings into consideration, but ultimately, I will be making my own assessment. Nevertheless, it the following criteria should be used as a checklist when developing your tool and presentation:

- **Practical Relevance:** Do the outputs provided by the tool appear applicable in practice? Are the outputs provided likely to encourage repeated subsequent use by the target user?

- **Input/Output Characteristics** Does the tool account for any uncertainty or variability regarding the data/assumptions? Is risk/sensitivity associated with the outputs accounted for and described by the tool? Does the tool include error handling or account for tool misuse?

- **Analytical Components:** Value is added via presentation (e.g., tables, charts and graphs) and data analysis/manipulations (e.g., modeling, heuristics, optimization, cleaning, data redux via pivot-table filters, formula-based sorting/reference, simulation comparisons, etc.).

- **Transparency and Usability:** Are there direct/clear/intuitive ways for users to change specifics/parameters/constants in the tool (e.g., dropdowns, check boxes, etc.)? Is the tool clean, professional, visual appealing, and fairly easy to navigate? Are summaries and recommendations easy to identify (e.g., without scrolling)? Is labelling well applied (captioning and axis details, as well as naming of objects like cells and controls)?

- **Knowledge of Presenter(s):** Is there a display of understanding regarding the problem context, the analysis used, the outputs generated, the technical components of the tool and its limitations?

Ensuring Equitable Collaboration: Peer Evaluations

(NOTE: Students working on Masters Capstones will be given an alternative form for evaluating Masters students }

Along with the evaluation of other groups, you are expected to provide peer evaluations for those in your own group. Following your group presentation, please complete the following table and submit your assessments of your fellow group members via email, to me only. **"% Contributed" are required entries** and represent the extent to which you feel individuals contributed to the project work. These scores can range from 0-100%, in multiples of 5 (e.g. 85%, 90%, etc.) but the following benchmarks should be considered: **100%** = Went above & beyond expectations (uncommon and cannot be given to more than two people if at all). **90% or 95%** = Met expectations**. 80% or 85%** = Met most expectations. **75%** = Only moderate contribution. **70% or less** = Rarely present or barely contributed (if a group rates an individual at a median below 75%, the individual will only receive 80% of the group grade for project).

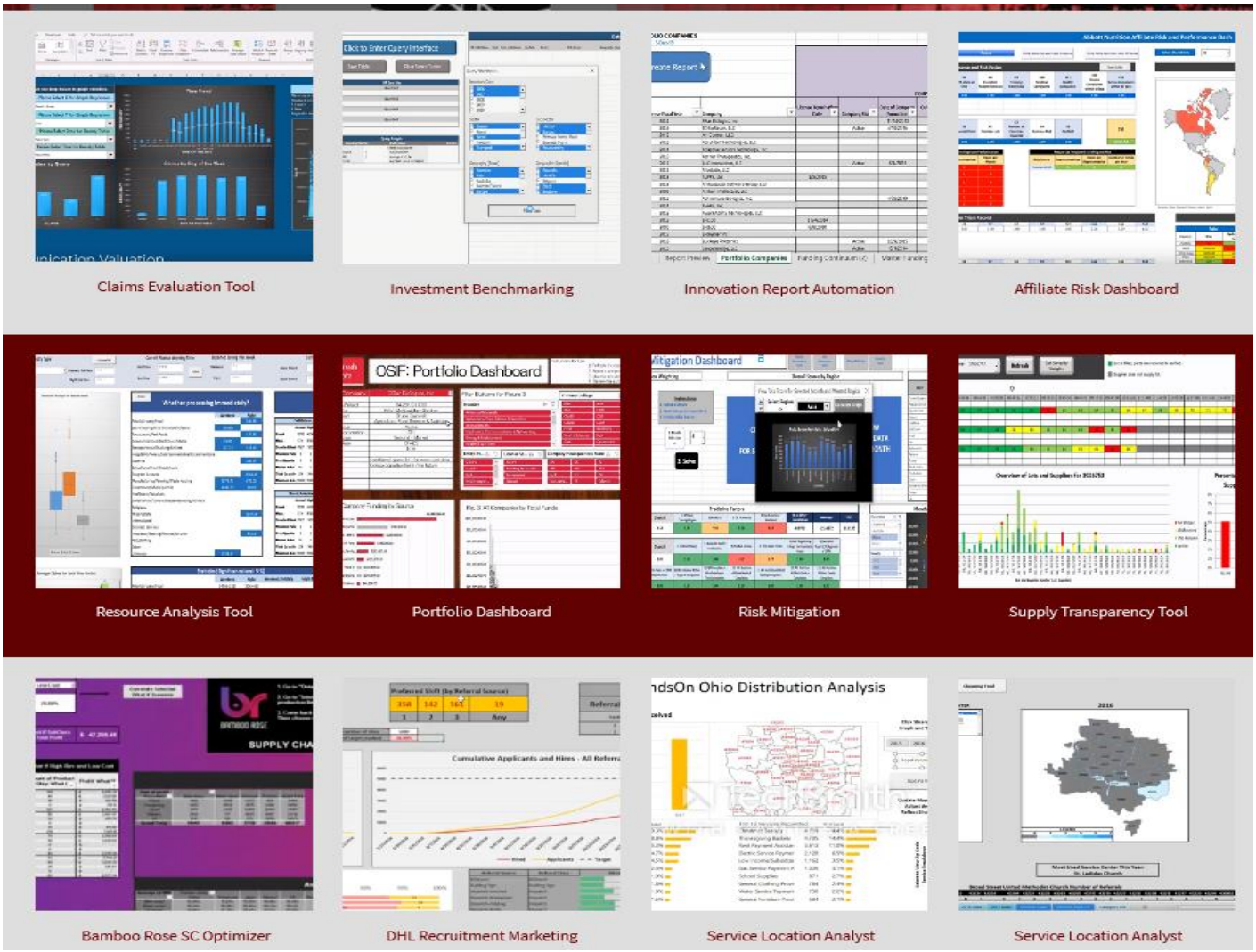
These scores also factor into overall course participation grades. Associated comments below are optional.

Group Members (include yourself)	% Contributed	Comments

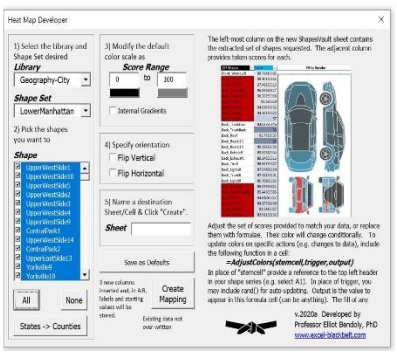
Expectations on interface development:

Although the aesthetics of the interface are not a direct concern of mine, the interface should be user-friendly and to that extent will require some conscious effort on the part of the group to ensure that controls and results are easy to locate and view in a logical and easily interpretable manner. *On the following pages* are some screen shots of past projects that were able to provide both the level of rigor in back-end data-management, calculations and automation while still providing what would be expected of a professional front-end interface.

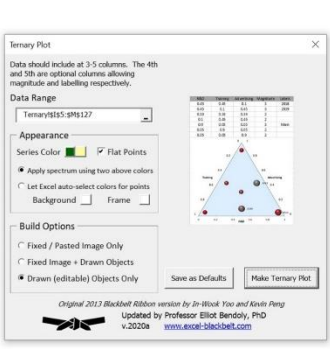
Format-A Examples: Workbook-based Applications *(others at http://experimental-instruments.com/Gallery.htm)*



Format-B Examples: Workbook-independent Add-ins*(others at https://sites.google.com/site/exceladdinsdirectory/home/main-directory)*



Heat Mapper tool in the Blackbelt ribbon add-in



Ternary Plot tool in the Blackbelt ribbon add-in

Participation [O 🗣] {Independent or collaborative. 20% of Course Grade}

The course is designed to incorporate significant portions of in-class lab-time during which students will be able to work on examples and later on their own projects. While *attendance* in class is *voluntary,* participation in lab exercises is *expected* (a unique issue to lab courses). Furthermore, there are benefits to what I refer to as "positive" versus "negative" participation even during non-lab discussions/lectures. Positive participation involves consistently providing insightful contributions to classroom discussion, enthusiasm in class learning activities and a willingness to take responsibility and add-value to student-group projects. This is assessed at the end of the semester based on my classroom observations as well as peer (e.g. project group member and audience) evaluations. Highly positive participation can push students above the boundary of two grades. Similarly, negative participation can have the opposite effect.

All students must also join in the "Excel Blackbelts" forum: https://www.linkedin.com/groups/3124035/
This is a 28,000+ member discussion forum and job board. A good place to network, get off-topic questions answered, and voice specific questions on your projects (questions about homework problems should NOT be posted – *such posts will be viewed as a breach of the ethics contract*).

Negative participation involves things like talking about non-class issues during class discussion, doing homework in class, not participating in activities, not contributing to group project work, consistently arriving late or leaving early (without informing me ahead of time), etc. Consistent negative participation (again measured by my own observations and reports of your peers) can bring a student's grade down.

To that end, all students are required to sign the class's Ethics Contract (provided by email or online conference) and submit a signed copy to me within the first week of class (preferably the first day). Without a signed contract I will not be able to assign any points to assignments (i.e. scores on quizzes and homeworks will be "0"). Signing of the ethics contact is also part of the total participation grade in this course. Students are also encouraged to read over the COAM (Committee on Academic Misconduct) for guidelines established by OSU. A copy is included within this syllabus.

Q: Why is this so important?
A: This is not a class of "1" - *What you do affects the learning environment of those around you*. I want to give everyone the best opportunity to take lessons away from the time they spend in class, and anything that detracts from those opportunities needs to be discouraged. Having said that, again, you will *not be penalized for not attending class*. If you feel that on certain days, you have other priorities or will have a hard time avoiding negative participation of some kind... just don't come in (That's ok). But if you do come to class, come prepared to listen and work.

A final note on in-class demos with Excel: In class I'll often ask students to open up files I've made available (either on-line access from the Cambridge site or the course conference). ***BEFORE opening a new file, unless instructed otherwise, PLEASE close down the Excel application first (if already open).*** *The entire application, not just a given workbook. In class we will alternate between different Excel settings, some of which will not work well with certain examples. Closing down Excel prior to opening new examples will help avoid functionality errors.*

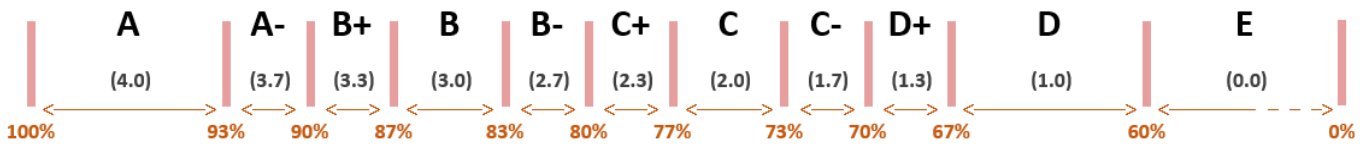
A quick note on the development environment:
The fact that "Excel" is used as the primary platform for development in this course is nothing more than a matter of convenience, on a number of levels: (1) Most students have Excel freely available to them, (2) Most corporations have Excel available to their workers and already have a legacy of use, (3) Excel is much more and user-friendly and versatile an environment for managerial support system development than a host of other object-oriented development environments.

DISCLAIMERS:

1) If you *already have* extensive Excel or VB development experience, this class *might not* be right for you. I'll be spending a bit of time ramping people up to a skill base at which development can take place. Please consult with me personally if you feel you have considerable experience and are unsure whether to participate in the elective.
2) If you are not willing to dive a little into computer programming (which we'll do only very lightly with Macros at the very end of the semester), this course might not be for you. I want to emphasize that NO past programming experience is expected, and that those students who have learned the few key tricks we'll cover in class on Macros have truly appreciated the power these have given them. Please consult with me personally if you feel uncomfortable with the idea of learning a little about these very powerful tactics.

GRADING SCALE

In order to give an overview of how concepts will be attributed, the following scale was created for this course.



FEEDBACK AND RESPONSE TIME: Students should expect feedback for each assignment. The instructor will be available via email (as mentioned in the course overview). Additionally, students may also be aware of the following.

- **Grading and feedback:** for large weekly assignments, students can generally expect to receive feedback within 7 days.
- **Email:** I will reply the emails within 24 hours. The TA for this course should also reply the emails within the same period.
- **Discussion board:** eventually, discussions may be posted on the discussion board at Carmen. Students should be aware of these discussions and participate on them. I will check messages on the discussion board every 24 hours.

DISCUSSION AND COMMUNICATION GUIDELINES

The class environment should be favorable for learning. Communication is strongly encouraged among all involved parties (students, instructor and TA). However, it is also good to remember to be respectful and thoughtful! In this sense, the following rules should be considered:

- **Writing style:** while there is no need to participate in class discussions, the student should make sure to address to the instructor and other students with good grammar, spelling and punctuation. This rule follows for both physical and online class environments.
- **Tone and civility:** the environment of the class should be one of supportive learning where everyone should feel safe. Disagreements are definitely okay! However, they should be addressed amicably.
- **Citing your own sources:** when involved in an academic discussion or when writing a homework or project report, please make sure to properly cite sources and back up what your ideas.

COAM (Committee on Academic Misconduct) Guidelines

1. **ACKNOWLEDGE THE SOURCES THAT YOU USE WHEN COMPLETING ASSIGNMENTS:** If you use another person's thoughts, ideas, or words in your work, you must acknowledge this fact. This applies regardless of whose thoughts, ideas, or words you use as well as the source of the information. If you do not acknowledge the work of others, you are implying that another person's work is your own, and such actions constitute plagiarism. Plagiarism is the theft of another's intellectual property, and plagiarism is a serious form of academic misconduct. If you are ever in doubt about whether or not you should acknowledge a source, err on the side of caution and acknowledge it.
2. **AVOID SUSPICIOUS BEHAVIOR:** Do not put yourself in a position where an instructor might suspect that you are cheating or that you have cheated. Even if you have not cheated, the mere suspicion of dishonesty might undermine an instructor's confidence in your work. Avoiding some of the most common types of suspicious behavior is simple. Before an examination, check your surroundings carefully and make sure that all of your notes are put away and your books are closed. An errant page of notes on the floor or an open book could be construed as a "cheat sheet." Keep your eyes on your own work. Unconscious habits, such as looking around the room aimlessly or talking with a classmate, could be misinterpreted as cheating.
3. **DO NOT FABRICATE INFORMATION:** Never make up data, literature citations, experimental results, or any other type of information that is used in an academic or scholarly assignment – **Amendment:** *UNLESS USED STRICTLY TO ILLUSTRATE THE FUNCTIONALITY OF A TOOL, IN LIEU OF PROPRIETARY DATA OR IN ITS RESTRICTED USE.*
4. **DO NOT FALSIFY ANY TYPE OF RECORD:** Do not alter, misuse, produce, or reproduce any University form or document or other type of form or document. Do not sign another person's name to any form or record (University or otherwise), and do not sign your name to any form or record that contains inaccurate or fraudulent information. Once an assignment has been graded and returned to you, do not alter it and ask that it be graded again. Many instructors routinely photocopy assignments and/or tests before returning them to students, thus making it easy to identify an altered document.
5. **DO NOT GIVE IN TO PEER PRESSURE:** Friends can be a tremendous help to one another when studying for exams or completing course assignments. However, don't let your friendships with others jeopardize your college career. Before lending or giving any type of information to a friend or acquaintance, consider carefully what you are lending (giving), what your friend might do with it,

and what the consequences might be if your friend misuses it. Even something seemingly innocent, such as giving a friend an old term paper or last year's homework assignments, could result in an allegation of academic misconduct if the friend copies your work and turns it is as his/her own.

6. **DO NOT SUBMIT THE SAME WORK FOR CREDIT IN TWO COURSES:** Instructors do not give grades in a course, rather students earn their grades. Thus, instructors expect that students will earn their grades by completing all course requirements (assignments) while they are actually enrolled in the course. If a student uses his/her work from one course to satisfy the requirements of a different course, that student is not only violating the spirit of the assignment, but he/she is also putting other students in the course at a disadvantage. Even though it might be your own work, you are not permitted to turn in the same work to meet the requirements of more than one course. You should note that this applies even if you have to take the same course twice, and you are given the same or similar assignments the second time you take the course; all assignments for the second taking of the course must be started from scratch.
7. **DO YOUR OWN WORK:** When you turn in an assignment with only your name on it, then the work on that assignment should be yours and yours alone. This means that you should not copy any work done by or work together with another student (or other person). For some assignments, you might be expected to "work in groups" for part of the assignment and then turn in some type of independent report. In such cases, make sure that you know and understand where authorized collaboration (working in a group) ends and collusion (working together in an unauthorized manner) begins.
8. **MANAGE YOUR TIME:** Do not put off your assignments until the last minute. If you do, you might put yourself in a position where your only options are to turn in an incomplete (or no) assignment or to cheat. Should you find yourself in this situation and turn in an incomplete (or no) assignment, you might get a failing grade (or even a zero) on the assignment. However, if you cheat, the consequences could be much worse, such as a disciplinary record, failure of the course, and/or dismissal from the University.
9. **PROTECT YOUR WORK AND THE WORK OF OTHERS:** The assignments that you complete as a student are your "intellectual property," and you should protect your intellectual property just as you would any of your other property. Never give another student access to your intellectual property unless you are certain why the student wants it and what he/she will do with it. Similarly, you should protect the work of other students by reporting any suspicious conduct to the course instructor.
10. **READ THE COURSE SYLLABUS AND ASK QUESTIONS:** Many instructors prepare and distribute (or make available on a web site) a course syllabus. Read the course syllabus for every course you take! Students often do not realize that different courses have different requirements and/or guidelines, and that what is permissible in one course might not be permissible in another. "I didn't read the course syllabus" is never an excuse for academic misconduct. If after reading the course syllabus you have questions about what is or is not permissible, ask questions!

Besides the above, students are encouraged to familiarize themselves to other sources of information related to academic misconduct (integrity). Some good sources that students can refer to are the following.

- The committee on Academic Misconduct web pages (COAM Home);
- *"Ten Suggestions for Preserving Academic Integrity (Ten Suggestions);*
- *Eight Cardinal Rules of Academic Integrity (www.northwestern.edu/uacc/8cards.htm).*

ACCESSBILITY – ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. 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.

Class Schedule (note that topics and chapter references may change based on learning, but assignment and quiz dates are fixed)

Module	Date	Topics	Readings (BB3=Blackbelt 3rd Edition; VA: Visual Analytics)	Discussion Format	Graded Components	Type*	Assess. Format
1 - Foundations: Simple Patterns, Reference and Logic	Jan 7th (Tu) Jan 9th (Th)	The role and customization of analytical decision support Data organization basics in the common environment	Preread: Chapters 1 & 2 BB3; {Opt: Chapters 1-3 (VA)}	InClass			
2 - Sourcing, Cleaning/Prepping and Rationalizing Data	Jan 14th (Tu) Jan 16th (Th)	Data linkage and acquisition, various sources Data compression, simple inference and caveats ~	Chapter 3 (BB3)	InClass			
3 - Visualizing Data & Dynamics Motivating / Sharing Analysis	Jan 21st (Tu) Jan 23rd (Th)	Trait and relational graphs - Basics and their extension More exotic approaches to visualization	Chapter 5 (BB3) Chapter 4 Supplement	InClass	***Quiz #1 (start of class, Tues, Jan 21st)***	N	Form + Workbook
4 - Description vs. Comparison Predictive Analysis	Jan 28th (Tu) Jan 30th (Th)	Statistical and inferred difference between groups Estimating association between X-dimensions (prediction)	*No Pre-Reading Assigned*	InClass	***HW1 (due Wed, 5pm Jan 29th)***	N	File via email
5 - Simulation Analysis & Control in Best Practice	Feb 4th (Tu) Feb 6th (Th)	Playing out the riskiness of our decisions Performance tests; Tabular tool integration & control	Chapter 4 (BB3)	InClass	***Quiz #2 (start of class, Tues, Feb 4th)***	N	Form + Workbook
6 - Analytics of Optimization in Decision Support Tools	Feb 11th (Tu) Feb 13th (Th)	Model construction and basis of math-programming Sensitivity and robustness of optimal prescriptions	Chapter 6 (BB3)	InClass			
7 - Complex-Dynamic Optimization and Analytical Planning	Feb 18th (Tu) Feb 20th (Th)	Dealing with non-linearities & multiple objectives Frameworks, analysis and interpretation	Chapter 7 (BB3)	InClass	***Quiz #3 (start of class, Thur, Feb 20th)*** ***HW2 (due Fri, 5pm Feb 21st)***	N N	Form + Wkbk File via email
	Feb 25th (Tu) - 7-week exams - No Classes						
8 - Intro to Programming Syntax Repetition and Access	Feb 27th (Th) Mar 4th (Tu)	"Surgery" and bottom-up coding; Basic syntax Using conditions, Loops	Chapter 8 (BB3)	InClass	***Outlines (due 11pm Fri, Feb 28th)***	C	File via email
9 - Advanced Use of Automation	Mar 6th (Th)	User-Defined functions (UDFs)			***Quiz #4 (start of class, Thur, Mar 6th)***	N	Form + Wkbk
	Mar 11th (Tu) *Mar 13th (Th)*	*Spring Break*					
10 - Leveraging User-Friendly Interface Designs	Mar 18th (Tu) Mar 20th (Th)	Error handling, User front-end interfacing and protection More experience with user interface development	Chapter 9 (BB3)	InClass	***Quiz #5 (start of class, Thur, Mar 20th)***	N	Form + Workbook
11 - Critiques and Considerations in Proofs of Concept	Mar 25th (Tu) Mar 27th (Th)	Finishing touches on UI packaging More thoughts on VBA, Sampling of prior projects	{Opt: Chp 8 & 10 (VA)} (Past Projects in Deck)	InClass	***HW3 (due Fri, 5pm Mar 28th)***	N	File via email
12 - Lab Intensives (mid-design)	Apr 1st (Tu) Apr 3rd (Th)	*Project Labs and Advisory - I* *Project Labs and Advisory - III*	*ALL Team members must attend class for collaborative work. No Pre-Reading Assigned*	InClass	*(Team participation: ALL Team members must attend class)*	C	
13 - Labs - Critical-points Design wraps	Apr 8th (Tu) Apr 10th (Th)	*Project Labs and Advisory - III* *Project Labs and Advisory - IV*		InClass	**Final Videos Submitted (Links due via email 11pm Sun Apr 13th)**	C	Link via email
14 - Final Presentations	Apr 15th (Tu) Apr 17th (Th)	*Presentations of group projects and judging* *Presentations of group projects and judging*	*No Pre-Reading Assigned*	InClass	**Final Projects Submitted (by 11pm Wed, Apr 16th)**	C	Files via email

Graded Component Types:		
	N	*Independent Work: Strictly non-collaborative, original individual work. Discussions with instructor only.*
(in-class/Zoom participation activities -->)	O	*Optional-Collaboration: Original individual work/submissions; Students are permitted to discuss among themselves.*
	C	*Collaboration-Required: An explicit expectation for collaboration among students.*