Course Syllabus: Sport Data Analytics I

Sport Management 461-01 – Spring 2023

Basic information

Course-related information

Course number: Sportmgt 461-01 **Spire number**: 65722
College: Isenberg School of Management **Department**: Mark H. McCormack Dept of Sport Management
Meeting times: Tue & Thu 10:00am - 11:15am **Room**: Isenberg G23

Instructor-related information

Instructor: <PROF_FULL_NAME>, Ph.D. **Email**: <PROF_EMAIL>

Office: ISOM 255A
Office hours: Use <LINK> Tue 1-2pm (live or virtual); Fri 10:00-11:00 (virtual or live); by appointment

Table of contents

What do we learn?

Course catalog description

This is the catalog description of the course:

> "Students will use analytics to study a wide variety of issues affecting the sport industry. Topics examined include player performance measurement, in-game decision making, player selection/team building, and general administration such as marketing, pricing, contracts, stadium management, etc. Students will learn not only how the recent application of analytics has improved each of these areas within the professional and collegiate sport industry, but also how analytics can improve decision making in any other field of business."

That's fine, but what does it actually mean? What and how are we going to learn in the class?

Course Syllabus: Sport Data Analytics I

Sport Management 461-01 – Spring 2023

Expected learning outcomes

The learning objectives of the course all relate to **generating knowledge from data**. That process usually happens to help people make better decisions, but learning from data also attracts the intellectually curious. The data in the course primarily relate to the sport industry, including data on player performance, consumer behavior, and financial outcomes. However, the learning objectives are rooted in cultivating quantitative literacy, and thus students develop analytical reasoning and technical skills that apply to any context in which one makes decisions.

During the term and upon completion of this course, students should be able to do each the following:

1. Collect and manipulate data

1.1. Use Microsoft Excel and/or related tools for generating answers to pertinent questions using data
- Sub-objectives include accessing data that exists on external sources (e.g., websites, APIs); importing, cleaning, and organizing data; handling numeric and textual data; and structuring data in ways conducive to analysis.

1.2. Access quality sources of data and research insights (academic, industry, or other), including those beyond sources provided within the course, and integrate those data/findings into project deliverables

1.3. Combine data from multiple sources into the same dataset

2. Analyze data germane to the sport industry

2.1. Analyze data to produce descriptive information (totals, counts, averages) and basic statistics (e.g., probabilities, means testing)

2.2. Interpret basic statistics and recognize how findings impact our understanding and decision-making

2.3. Generate research questions, "curiosity questions," and/or metrics that can be informed through data analysis, and do this across varying datasets (i.e., different sports and contexts)

2.4. Determine answers to the questions above through analysis in Microsoft Excel and/or related software covered in the course

2.5. Apply the skills learned during the course to conduct accurate and efficient data analyses that address topics of interest

2.6. Effectively communicate findings for others, such as through client reports, blog posts, or presentations

3. Engage with people and resources to enhance own understanding of course topics

3.1. Articulate the importance of data in the decision-making process

3.2. Recognize the impact of past developments in analytics on the current state of the industry, as well as the opportunities and challenges presented by modern business/ sport analytics and "big data"

3.3. Utilize course learning tools to advance one's own intellectual and professional development (e.g., class time, homework, video lessons, links to external support, lab sessions, tutoring, etc.)

3.4. Work collaboratively in a small team to produce deliverables within F2F and/or virtual environments

How do we learn?

You must be able to process information that comes to you from a variety of sources. For example, perhaps you tend to remember content you *hear* better than content you *read*, but hearing content is not always an option – it is imperative that you develop the ability to comprehend and learn from content delivered in other forms as well. This class uses several mediums through which to deliver content, as noted in this document.

In-class meetings

Most class meetings are run like a "workshop," where students actively complete data-related work on their own devices while following along with course instruction. Some class time is reserved for individual and group projects, and other sessions are primarily discussion-based.

Online video lessons

Some course sections are distributed via online video recordings. These are of *equal importance to in-class material*. They are simply delivered through an alternative medium.

Readings, videos, podcasts, and other materials

Additional readings (e.g., media articles, blog posts, book chapters, journal articles), videos (e.g., YouTube clips, movies, uploaded files), audio files (e.g., podcasts, .mp3s), PowerPoint decks, and more are provided as part of certain modules. These are distributed via Blackboard.

Most often, the additional resources assigned serve as the only source for ideas or important points of information. In other cases, they reinforce content discussed in lessons or class projects. It is rare that lessons *duplicate* content from the additional sources, and I will tell you when they do (e.g., same ideas delivered in a different way). That means you cannot "just read" or "just watch lessons."

Course assignments (homework, projects, problem sets, and practice assignments)

You complete several assignments to help learn and reinforce course content. Most of the assignments are Excel workbooks, while others are responses to course materials, online questions, and other forms of assignment. Students are expected to have completed all assignments (workbooks, readings, videos, note taking, etc.) prior to each class. Participation in class sessions is necessary and is augmented by proper preparation.

Physically working with data is imperative to learning. Effective learning *cannot happen* without massive amounts of practice, repetition, and working through the oh-so-many-mistakes. That reality makes these assignments more about learning than evaluation. That is, I don't care much about your final answers to questions – I care that you're working through them as instructed. (and if you do that, the good grades will follow)

This course is extremely cumulative (i.e., each lesson builds on the lessons before). The best thing you can do to make this course easy is to spend the necessary time and effort to complete these assignments correctly, especially during the first half of the course.

> The assignments are more about learning than evaluation.
>
> The learning value of course homework and assessments is the quantitative feedback they provide.

Assessments (exams and quizzes)

The learning value of course assessments is the quantitative feedback they provide. They build on course assignments to help identify where your development is relative to course learning objectives.

Tutoring and office hours

Throughout nearly all phases of the course, students are encouraged to work with others, seek tutoring support, and meet one-on-one during Office Hours.

How do we evaluate learning progress?

The learning tools (see How do we learn? on page 4) form the basis for the means of course evaluation. Table 1 lists the graded course components, with additional details in the section below the table.

The course components – as well as module topics and due dates – all represent the instructor's expectation at the beginning of the course. They should, therefore, be considered *tentative*. Changes may be necessary throughout the term based on course progress and unforeseen circumstances. If changes are made, they will be announced as far in advance as possible. If any expected module of this course or assignment cannot be fulfilled, the grading weight will shift to other activity modules and assignments.

Grade weights

Table 1: Grade weights for course components

Weight	Course component
34%	Homework assignments
19%	Final exam
16%	Midterm exam
18%	TMSIDK Data analysis project
13%	Student preparedness, engagement, and contributions to class

Homework assignments

Assignments include deliverables that students produce (e.g., workbooks, charts), assignments completed online, and other forms of graded and ungraded assignments completed during the term.

In addition, we may work collaboratively during class time on workbooks, projects, and data-related assignments. Sometimes these can be finished during class time, though they're often started in class and completed for homework.

For the day on which an assignment is due, your answers must be submitted prior to the start of class, unless noted otherwise. For several assignments, the online system automatically blocks any attempt submitted after the class start time, and in those cases no late work can be accepted.

TMSIDK Data analysis project

Data are only helpful if they are analyzed, disseminated, consumed, understood, and appreciated. Students engage in that process through conducting their own data explorations. Students develop questions about sports and sport data, use input data and analytical techniques to find answers, and craft a narrative that is presented to the students during an in-class poster session. The goal is to *Tell Me Something I Don't Know* (TMSIDK), where "me" is actually "other students in the class."

Course Syllabus: Sport Data Analytics I

Sport Management 461-01 – Spring 2023

Midterm and final exams

There are two exams during the term: the midterm exam and the final exam. You complete the tests on computers using software such as Excel. The exams are open-note, -book, -Blackboard, and -internet, but students cannot communicate with other people about the exam. Further specification is provided prior to the exams.

Study guides

There are no study guides for quizzes, exams, or any other type of summative evaluation. Completing classwork and homework assignments are the best preparation materials.

Student preparedness, engagement, and contributions to class

Student engagement is an important part of this course. Each student is expected to actively contribute to the learning environment, and others in the class should be better off for having that student as a peer in the course. The score here includes…

- Engagement during class time
    - Attendance
    - Focus on the current task and/or class session
    - Active participation, such as through asking questions and helping classmates
    - Grades reflect the quality of your contribution, not the quantity
- Preparedness for class, evaluated by mechanisms such as…
    - Pop quizzes during class
    - Quizzes/ Questions that are part of online lessons
    - Instructor's judgment
- Contribution to group deliverables (as evaluated by the instructor and/or peers)
- Occasionally, I award additional points where students offer contributions that are particularly valuable to the course. For example, I appreciate when students alert me to errors, such as when content that should be visible on Blackboard isn't appearing. I make mistakes every day, and technological issues happen, so it's helpful to the whole class to limit issues that cause confusion or inhibit student success.

Students who are disruptive/disrespectful

I add points for students whose course contributions truly augment the classroom experience. Conversely, I lower points for students who are disruptive, distracting, disinterested, or rude – e.g., not focusing on the class, using cell phones, talking at inappropriate times, visiting non-course-related websites, having side conversations, working on assignments unrelated to the current topic, coming in late/ leaving early, etc.

A student can get every question right and still fail the class.

At the extreme, students who do not respect classmates, instructors, tutors, and/or are particularly disruptive can receive minimal "Engagement" points *and* have their scores lowered on other course sections. That is, a student can get every quiz and homework question correct, but if they impede the learning environment, they may fail the course. Further consequences may include being removed from the course and having the case referred to the Dean of Students Office.

Extra credit

No extra credit is available for specific students in this course. All students have every possibility to do each class assignment to the best of their ability.

Grading scale

A+	100 - 96.5%	A	96.49 - 92.5%	A-	92.49 - 89.5%
B+	89.49 - 86.5%	B	86.49 - 82.5%	B-	82.49 - 79.5%
C+	79.49 - 76.5%	C	76.49 - 72.5%	C-	72.49 - 69.5%
D+	69.49 - 66.5%	D	66.49 - 59.5%	F	less than 59.5%

For information on calculating your GPA, visit the Registrar's website

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Key skills for course success

You do not need to study – in the typical use of the word – to be successful in this course. I designed the course to reward traits that are particularly useful after graduation.

Consistent practicing

The homework and exams carry a significant amount of weight in the course, but there is no single assignment can cause you to pass or fail. Rather, there are several smaller assignments that are critical to skill development. You need to work consistently, not just before class days or when heavier-weighted work is due. Do a little bit at a time, but do it regularly and according to the instructions.

Working ahead of due dates

Working with data can be tricky. There are often times when you'll spend hours on something that should have taken minutes.

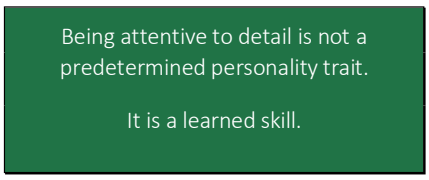
This doesn't change, by the way. The hours-on-what-should-be-minutes problem plagues everyone who works with data throughout their entire lives.

Fortunately, a quick conversation with a classmate, tutor, or instructor can usually get you "unstuck," as long as you have time to do so before the due date. That's why working a few days before the assignment is due can save hours of headache and frustration.

Attention to detail

We cover a lot of material. There are regular assignments, and there are multi-step quantitative problems where a misplaced decimal means a wrong answer. You can succeed by being organized, taking your time, and checking your work.

Being attentive to detail is not a predetermined personality trait, it is a learned skill. The stakeholders in your life (coworkers, customers, etc.) will expect your best, and you should expect that as well.



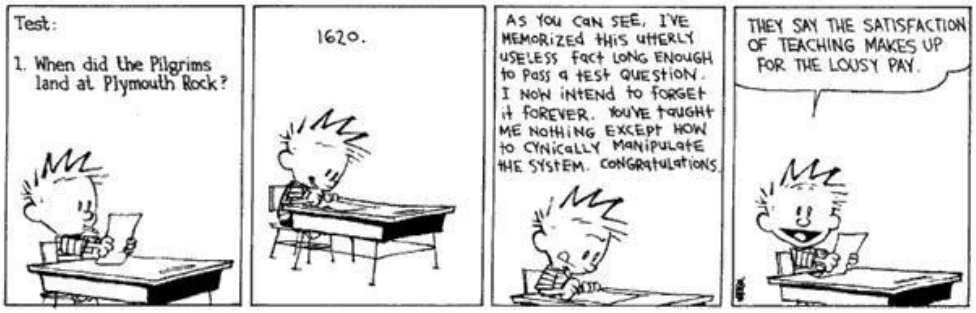
> *CONTINUED ON BLACKBOARD IN COURSE GUIDE > **[IN]ATTENTION TO DETAIL**.*
> *READ ABOUT ERRORS IN EXCEL AT THE LONDON OLYMPICS, IN THE GREEK ECONOMY, AND MORE.*

Course Syllabus: Sport Data Analytics I

Sport Management 461-01 – Spring 2023

Understand, don't memorize

Figure 1: Calvin astutely notes a flaw of memorization-based curricula



I have never had a manager tell me, "Memorize this by next Tuesday!" Being good at memorizing is a nice skill to have, but it is not critical to success in business. Being able to *understand*, *synthesize, critically analyze,* and *apply* knowledge is what will help you thrive.

When working with data, you will not face a technical challenge that someone else on the internet hasn't faced already. We have access to the world's knowledge at our fingertips, but you need to be able to efficiently sift through all that content to find your answers.

> The better you are at searching Google and Stack Overflow, the further you can go in analytics.

Technology requirements

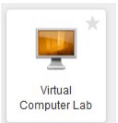
The course is held in a Windows-based computer lab, thus students do not need any additional technology during class time. However, to complete video lessons and course assignments outside of class, students will need the proper technology environment and/or use the virtual computer lab.

Students will need the full version of Microsoft 365, specifically for using Microsoft Excel. This is available for free from UMass IT.

All work will be completed in a Windows environment. Students may be able to use Apple devices for some assignments – assuming they have the latest Microsoft 365 software – but there are many limitations. Using Excel on Windows is strongly recommended, and it is required for certain lessons and assignments.

> *CONTINUE READING IN THE **TECHNOLOGY HELP** SECTION OF BLACKBOARD (WHAT SOFTWARE DO I NEED?)*

Virtual computer lab



Isenberg provides remote access to virtual computer labs for all our students. That means you can control a Windows-based computer from your own device, regardless of your operating system. The lab computers have recent [enough] versions of Microsoft Office available for use.

If you have a Chromebook, device running Linux, or for some reason cannot install the full version of Office 365, use the virtual lab for all course work.

Attendance and technical issues

You are expected to attend and be engaged during most class sessions. As stated on page 6, the rest of the class should be better for you having been in the course, and you must be present in class to contribute. Moreover, class time helps you keep up with the material and improve your understanding of course concepts.

Attending doesn't assure you will learn, and missing class doesn't mean you'll fail. Daily engagement is just one of numerous metrics I use when assessing your progress toward the course learning outcomes; see "Expected learning outcomes" (page 3) and "How do we evaluate learning progress?" (page 5). However, if you're not going to attend consistently and engage with the class, please drop the course and talk to me; I will gladly recommend a self-study approach through which you can learn much of this material without wasting my time or that of your classmates.

Special consideration

I recognize that there may be logistical difficulties beyond your control. If they are persistent – i.e., issues that you know will last for the duration of the semester – you must contact me by the second day of class. We will attempt to work out a plan together that ensures you are able to earn a fair evaluation toward your ability to meet the course learning outcomes.

While this semester is better than the 2019-2020 academic year, there are still going to be surprises, course alterations, and technical difficulties that pop up during the term. I understand. Thus, the following adjustments are in place for the Spring 2023 term:

- I automatically drop the lowest Homework assignment score
- Assignments submitted late can earn full credit if they are submitted…
    - …before the answer key is available,
    - …before the grading process starts, *and*
      Most assignment grading is done in bulk using code I wrote to help with identify areas for improvement, thus I need to all assignments together to complete the grading.
    - …before we go over the assignment in class.
      We review the assignments in detail, thus it would be unreasonable to accept submissions after that process.

  Unfortunately, while I try to be lenient, **late submission is not possible for most assignments** because we usually review homework assignments on the day they're due. Thus, please submit on time and talk with me in advance if needed.
- I will adjust more as needed and will try to be as flexible as I can.

That said, **you cannot work at the last minute**. Complete your assignments ahead of time so that, if there are issues, you will have time to address them. Also, **you must communicate**, especially in advance. I want to help you succeed in the course and I know you face numerous barriers, but it is only through working together that we can get around those challenges.

Making up for missed work

Students who miss class are expected to get any notes and assignments from other students in the course. I do not respond to requests such as, "What did I miss from yesterday's class?" or "Was there any homework assigned in class?" (unless I am at fault for inadequate communication… which definitely happens)

Students are responsible for any material covered during missed class sessions. If an assignment is due that day, the absent student must still submit it before the class begins.

Students who know they will miss multiple days during the term (e.g., athletes who know their schedules) must talk with me during the first week to determine how they will be able to succeed in the class in spite of their schedules.

Again – this class is *very* cumulative. If you miss anything, get caught up **BEFORE** the following class session.

Safety policies specific to the realities of pandemic life

The university and Isenberg School of Management developed policies to reduce the transmission of COVID-19, monkeypox, and whatever comes next; see pandemic policy information. These policies will almost surely change. Students should review updates to the UMass policies and ask me for clarification if there are discrepancies between university policy and anything in this syllabus.

I expect that all course participants will act in a way that ensures their own safety and that of their fellow participants. To that end, cases where students failure to comply are considered violations of the Code of Student Conduct and will be referred to the Dean of Students Office.

Dr. <PROF_LAST_NAME> *addition*: Please don't do this. I want to spend time talking about Sport Management issues with you, not dealing with the paperwork and meetings that this would create.

Academic integrity policy

I do not tolerate cheating of any kind. It's okay if you don't do as well as you could on a test, or you miss assignments occasionally, but a disregard for academic integrity is completely unacceptable.

The purpose of college courses is to help expand how you think about problems and to prepare you for your future life and career. Cheating achieves neither of those goals - it only hinders the development of the student and integrity of the institution.

If you're going to cheat, just stop. Don't do the assignment. Shut your computer and walk away.
Whatever bad outcomes might come of that, they're preferrable to fraud.

When is it okay to work with others?

Learning from one's classmates is the central goal of group-based education. Working together allows students to solidify issues discussed in class and possibly obtain a different perspective on course topics. In some cases, a classmate may be able to explain something in a way that resonates or makes *more* sense than the approach used by the professor.

For several assignments, I *encourage* you to work with your classmates. Moreover, all assignments and assessments are open note, open book, and open internet. But, you must be the one completing the assignment, and some assignments forbid all communication with others. Table 2 summarizes when you can use other resources.

Table 2: Summary of permitted resources by component type

Course part	Blackboard/ course content	Internet/ AI*	Students in the class	Course tutor or instructor	Others outside of class*
Team projects	✓	✓	✓	✓	✓? Probably is acceptable, but best to check**
Homework (e.g., Excel workbooks)	✓	✓	✓? Acceptable if following course policies [Unless told explicitly to complete alone]	✓	X? Probably not acceptable**
Data analysis project	✓	✓? Mostly acceptable, but only limited use of AI	✓? Mostly acceptable, but you need to do the work; they can help in small ways (e.g., consulting, editing, brainstorming)	✓	✓? Mostly acceptable (same as students in the class)
Exams, quizzes	✓	✓	X Never acceptable	✓ - Instructor X - Tutor	X Never acceptable

* You may use pre-existing internet resources, including message boards and YouTube videos. You may not make posts related to course content or otherwise communicate with others about the material. A goal is for you to be able to find existing answers.

** *ASK DR.* <PROF_LAST_NAME> *FIRST*. There are often many ways to solve a problem. The material is presented in a specific way (though it may be months before that reasoning becomes clear), and a well-meaning roommate or family member might inadvertently subvert your learning by teaching a different approach. That is why it is better to utilize class-based resources.

Working together is valuable and appropriate. Copying from another's work is not.

The assignments you submit must reflect your own efforts. For individual homework assignments, you may be with others while completing the work, but *you must each be physically doing the work*, not just sitting with each other while someone else does it. You learn a lot by making mistakes as you work; thus, *you* need to be the one making those mistakes.

Likewise, you *cannot share files*. You cannot email/IM each other formulas. Helping each other is good, but you *must* be the one doing the work.

If you are unsure about the degree to which you may work with a classmate, it is your responsibility to check with me for clarification prior to working together on the assignment.

Team violations are personal violations

Academic dishonesty discovered in group work (including working with a partner) results in all members of the group being considered in violation of the academic integrity policy.

Course Syllabus: Sport Data Analytics I

Sport Management 461-01 – Spring 2023

Using artificial intelligence tools

Tools like ChatGPT, Bard, and GitHub Copilot are amazing. I encourage you to use these AI tools to help solve data problems, and we'll look at some ways to do so during class. However, for certain assignments, you are only permitted to have limited use of AI tools. For example, when working on your data analysis project, you need to write all the content yourself.

> *CONTINUE READING WITHIN THE **TECH HELP** SECTION OF BLACKBOARD ("CAN I USE AI TOOLS ON ASSIGNMENTS?")*

Talk to Dr. <PROF_LAST_NAME> first

AI is advancing rapidly. The best approach is to discuss the use of any external tool with Dr. <PROF_LAST_NAME> *before* using it for coursework. He loves helping students learn how to best utilize new technology to maximize learning.

University academic honesty policy and procedures

All university rules governing academic honesty apply in this class and students are expected to fully know and understand the university's policy (see https://www.umass.edu/honesty). This section shows four forms of academic dishonesty, university definitions, and examples of impermissible activities in the course (not an exhaustive list).

Did you know…
Academic fraud is against the law in 17 states including Massachusetts

Cheating

Definition: "Intentional use or attempted use of trickery or deception in one's academic work"

Examples

- Looking at someone else's test/quiz, or copying from someone else's homework
- Communicating with another student about any course material while a test/quiz is available
- "Working together" on an individual assignment but only one person is physically doing the work

Fabrication

Definition: Intentional falsification and/or invention of any information or citation

Example: Making up data to use in a project

Plagiarism

Definition: Knowingly representing the words or ideas of another as one's own work

Example: Writing a response in a team project that uses the ideas from other students, something on the internet [without properly citing the source], or from AI-generated content. See these resources for help preventing accidental plagiarism; I prefer APA style citations, but I'm okay if you use a different established style.

Even if you meant to cite a quote or idea but forgot, it will be considered plagiarism – there is no way for me to know what your intentions truly were at the time you were writing the assignment.

Note: Instructors reserve the right to use plagiarism prevention software (such as TurnItIn.com) as well as Google or other Internet search engines to determine plagiarism in student submissions. With plagiarism

prevention software, instructors may upload student papers into a searchable database, but student work will remain confidential to the extent possible.

Facilitating dishonesty

Definition: Knowingly* helping or attempting to help another commit an act of academic dishonesty

***Modification to the definition:** Within this course, *facilitating dishonesty includes sharing all or part of an individual assignment that is used in an academically dishonest manner*, regardless of whether the sender *knowingly* helped the other person commit academic dishonesty.

Never share any part of your assignment with a classmate.

Do not *ever* send an assignment, or any portion of any assignment (e.g., a formula for a question), to a classmate. It is imperative to the learning process that each student completes the full assignment for themself. On individual assignments, no student can use another's material or copy/paste any aspect from another's work. Further, some assignments are customized for each student; if a student submits all/part of another student's assignment, both parties are considered in violation of the academic integrity policy.

How to help the right way: It's great if you want to help, assuming that's permissible on the assignment. Help by meeting live, talking your classmate through the work, looking at each other's screens, etc. Those methods allow the student to learn in ways that copying and pasting do not.

On exams, you cannot discuss the material *at all*. That can be hard, since the exams are take-home assignments completed over several days. But you need to be diligent about waiting until after the assignment is due before discussing any aspect of it with others.

Other examples of facilitation:

- Communicating about any course material while a quiz/test is open
- Sharing course materials with anyone in or outside of the course
    - There may be times when sharing materials with other students in the class is acceptable, but you need to check with me first.
- Posting any class materials to online web sites
    - This also likely violates copyright law and the case would be referred to law enforcement
- Putting a student's name on an assignment toward which that student did not contribute. E.g., if a group member is absent and does not contribute to the completion of an in-class project, their name cannot be included on the submission.
- Evaluating a student as contributing more to the class than they actually did. E.g., giving a peer undeservingly high marks during a peer evaluation.

What if I commit an academic integrity violation?

If you commit an academic integrity violation – accidentally or in a moment of poor judgement – contact me right away. We will try to figure out how you can still achieve the intended learning outcomes of the assignment, and we'll discuss an appropriate sanction. I am more understanding about self-reported violations. In most cases, the academic integrity issue and sanctions do not end up in your permanent academic record.

If I discover your violation, I follow the university procedures in addressing the issue and determining a sanction. Sanctions may be minor (a letter-grade reduction in final course grade, 0 on the assignment) or more severe (grade of F for the course), depending on the incident and context.

Student support

Please talk with me if there are extenuating situations that impact your ability to succeed in achieving the course learning outcomes, and/or utilize the resources below.

University support services

The university offers many forms of support, particularly around mental health. Seriously – I'm amazed at the resources that available. Review the Support Services page or talk with me and I'll help connect you.

Course accessibility

This is a very difficult course to make appropriately accessible, but I'm trying to do so and learning ways to improve. *Please* make me aware of accessibility shortcomings in my classes. I really appreciate the opportunity to make the course better, and future students are grateful for your help.

See http://www.umass.edu/disability/students for the university's accessibility resources and accommodations to maximize learning opportunities.

Figure 2: Equality vs equity

Source: The Robert Wood Johnson Foundation (link), via the Better Bike Share Partnership (link)

Tutoring

Tutoring information is available on Blackboard, and time with the tutor can be booked via the Office Hours Bookings link.