



BUSFIN 7234: FINTECH

| | |
|-------------------------------|--|
| INSTRUCTOR: | <i>Dr. Pirim</i> |
| OFFICE: | <i>244 Fisher Hall</i> |
| E-MAIL: | <i>pirim.2@osu.edu (Please allow 24 hours to respond.)</i> |
| WEB PAGE: | <i>Carmen</i> |
| CLASS TIMES AND ROOMS: | <i>Thursday 5:30 PM - 7:40 PM, Online</i> |
| OFFICE HOURS: | <i>By appointment, please email with the subject "BUSFIN 7234 Meeting Request"</i> |

Course Description

The course provides an overview of the most recent technological advances that are radically changing the financial services industry. These technological innovations offer cost-effective, independent, and convenient ways for people to perform financial transactions. We will analyze how new technologies create value in the financial industry, from reducing unit cost, increasing transparency, increasing competition, creating network effects, leveraging economies of scales, and lowering asymmetric information. Hence, the course will cover the world of fintech, especially the areas of cryptocurrency, its fundamental concepts and techniques applied. In addition, the course will also introduce the technologies used in fintech world such as blockchain, Artificial Intelligence/Machine Learning. All these concepts are essential in the world of finance, but they are also applicable to personal financial planning.

Course Objectives

Students will gain a thorough understanding of the Fintech Industry. The term Fintech (Financial Technology) refers to the use of technology to improve the efficiency of financial services, reduce costs, offer new financial services, enhance accuracy, and solve financial services problems and frictions such as information asymmetry and agency conflicts. More specifically, the recent wave of Fintech is about using technologies such as blockchain and distributed ledger, artificial intelligence (AI) and machine learning (ML), and big data analysis to address problems in lending, payments, wealth/investment management, and insurance technology (insurtech).

The objectives of the course are to:

1. Understand the Fintech ecosystem and comprehend how leading Fintech companies use blockchain, AI and ML to drive their corporate strategies.
2. Learn blockchain technology and its applications including cryptocurrencies in a deeper level
3. Develop a high-level understanding of big data analyses and Artificial Intelligence/Machine Learning and their applications in finance.

After 8 weeks, students will acquire an understanding of Fintech: the terminology, concepts, and familiarity of potential technologies and applications in the Fintech and Insurtech industry. The course is a combination of lectures, group assignments/discussions, guest speakers from industry and a final exam.

Course Structure

Mode of delivery: This course is designed and conducted as an online model with 70% synchronous and 30% asynchronous. Hence, the lectures will be live online, and you are required to attend as there will not be class recordings for synchronous section. For the asynchronous section, the content videos and talks of notable speakers from Fintech Space as well as additional materials such as white papers and cases will be posted for you on Carmen.

Pace of activities: This course is divided into weekly modules as specified in the tentative schedule below. Students are expected to keep pace with weekly deadlines as well as assignments' due dates but may schedule their efforts freely within that time frame.

Office Hours: Office hours will be held by appointment, please email with the subject "BUSFIN 7234 Meeting Request".

Credit hours and work expectations: This is a 1.5-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) in addition to 6 hours of homework (reading, research, and assignment preparation).

Course Materials

Lecture Materials and Software

There will be lecture materials such as white paper, power point slides, online fintech videos that will be posted on course carmen website. These materials will be posted in the form of video files, MS Word, Power Point and/or Adobe Acrobat files. You are responsible for reviewing/studying all material posted on Carmen. Lectures may go beyond the weekly scope for certain topics. Therefore, it is important for you to follow the weekly modules on Carmen and Carmen announcements. ***Students are responsible for all announcements made on Carmen.*** If you struggle with the material, please see me during office hours and/or reach out to me as soon as possible to schedule an appointment.

*The required HBS cases for group assignments will be available via [Harvard Business Publishing website](#). In order to purchase the cases, the students need to access the Harvard Business Publishing from **the coursepack link** that will be provided on Carmen announcement at the end of first week. (You will click the Purchase Course button on the coursepack link.)*

Suggested Readings (Optional)

Wall Street Journal: www.wsj.com

Financial Times: <http://www.ft.com/home/us>

Bloomberg: www.bloomberg.com

Freakonomics: <http://freakonomics.blogs.nytimes.com/>

Baseline Scenario: <http://baselinescenario.com/>

Real Time Economics (WSJ): <http://blogs.wsj.com/economics/>

We will have hands-on data analysis exercises using the [Orange data mining software](#), which provides an open-source machine learning and data visualization toolbox. The assignments may require using

basic statistical tools, but programming skills are not required. Students will be given the opportunity to acquire required skills from online tools and supplied materials.

Course Website

The course website is located on Carmen. A student must be registered for the course to access the course web site.

Important Resources on the Course Website:

- Course syllabus
- **Some Course Videos**
- **Other supplementary materials such as white paper.**
- Lecture notes (PowerPoint slides)
- Course announcements
- Posted exam and paper scores (privately for each student)
- **Logging in Carmen:** Be sure you are logging in to the course in Carmen, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.)

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 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 Technology skills specific to this course are:

- Basic computer and web-browsing skills
- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#)

Required equipment:

- Computer with high-speed internet connection
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software:

- **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

Technology Support for 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 helpdesk@osu.edu (or by phone at 292-8976) and IT support staff will work out a solution with you.

Course Requirements and Policies:

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](#).

Email Policy:

Any inquiries regarding the explanation of course subjects, information already included in syllabus such as curve and grading policies, exam date/time & materials, class average of the exams, any grading policy, technical problems such as Carmen IT issues **will NOT be answered via email**. However, you may schedule an appointment for any inquiries you may have.

Attendance and Participation:

Etiquette guidelines and professionalism will be followed. It is expected that students treat others, their ideas, and their time with respect by arriving class on time. Please mute phones, laptops, tablets and any other electronic devices. Laptops and tablets are permitted in class to be used ONLY for note taking and in-class assignments.

As your attendance and participation is a key element in the design of this course, I expect you to come to class having read and prepared all pre-class assignments, if assigned, as much of learning will occur through discussions in lectures and guest speakers.

Attendance will be taken in every class as it will be a significant part of determining your grade. If you are unable to attend a particular class, please notify me of your absence via e-mail prior to that class. Failure to notify me of absences or missing more than 2 sessions during the course will result in a lower grade. You are responsible for all information covered in class. If you miss a class, obtain the information missed from your group members and/or classmates.

Participation in discussions during lectures and presentations from Industry Professionals will be a significant benefit to you as well as others and will be considered in determining your grade. It is expected that your interactions will be well informed, constructive, and respectful. I will call on students if needed but voluntary participation is what will be most important for your grade. It is up to you to ask for feedback on your class contribution during the semester. Hence, active participation during guest speaker talks from EVERYONE in the class is STRONGLY encouraged.

Items that can lower your class contribution grade include, but not limited to:

- Unexcused absences
- Not being prepared to discuss the course material
- Not actively participating in class discussion

Reading/researching course subjects in advance and contributing class discussion will allow you to collect participation points. Quality of contributions counts as you will not get participation points for simply saying something.

Speaker Questions:

In order to facilitate the discussion with our speakers, if we have any, you will be required to submit 3 relevant questions prior to each guest speaker talk. You will get extra credit for submitted questions, but I will randomly select questions from the submissions to be asked in class. I will make sure that everyone has a chance to speak up over the course of the semester, but not everyone will necessarily be called on to ask a question in every class.

Team Assignments:

You will be randomly assigned a team of 3 people (via Carmen- click People- click groups) so please check Carmen for group information. There will be 3 assignment papers and 1 presentation that you will submit during this course. Your team papers and presentation will be graded on three main areas:

- Information
- Organization
- Grammar and Formatting

Team papers should be easy to read, and organization should be clearly evident with proper introduction, body, conclusion. Your overview of the business should be explained in clear language; immediately interesting and supported with detail. Each paragraph should have a central idea and ideas should be connected and paragraphs should be developed with details. Your paper must be 3-4 pages. The entire paper must be typed, double-spaced, 12-point Times New Roman font with one (1) inch margins (all four sides). Further details will be provided.

As assignment 2, each team will prepare a PowerPoint presentation on the Blockchain Projects and DeFi as Assignment 2. The presentation should be maximum 4 minutes long. All groups will submit PowerPoint presentation by the date specified on course schedule below. Please upload only one file per group via Carmen.

At the end of the semester, you will be required to complete a simple peer feedback assessment via Carmen. You will grade your groupmates as “above”, “meeting”, or “below” expectations for their contribution to this presentation and the assignment papers.

Final Exam:

There will be one exam which is the final exam on the date shown in the class schedule below. The final exam will be comprehensive hence will cover the topics covered as stated in the **Course Schedule**. All exam questions follow a multiple-choice and short answer format. The multiple-choice questions may involve both conceptual questions as well as analytical questions based on materials covered in class as well as study problems that will be posted during last week of classes.

The exams are “closed book/notes.” Students may not use any reference material to help them answer exam questions. You are permitted to use scrap paper during final exam.

Exam rules:

Final Exam is fully online. All electronic devices other than your calculator must be turned off and put away during exams. All other course materials must be out of sight. All hats and hoods must be off your head. Your exam grades will be posted on Carmen.

Petition for Exam Re-Grading:

If a student believes his or her exam was not graded correctly and wants a question re-graded, the students must submit a request to me in writing via e-mail. The request must be received no later than ten (10) days from the date of the exam in question. The request should carefully explain why the student wants his or her exam re-graded.

Make-up Exams:

As a general rule, make-up exams are NOT given in this course. However, a student may be allowed to take a make-up exam if, in the opinion of the instructor, there are special situations and/or extenuating circumstances officially approved by the Ohio State University such as Student Advocacy Center, Registrar’s Office. Without permission to take a make-up exam, failure to take an exam will result in grade of zero on the exam in question. Every effort should be made (e.g. email, voicemail, message with the Finance Department Office) to notify the instructor at least 12 hours in advance. The date/time of the make-up exam will be scheduled according to the instructor’s schedule by the instructor. Make-up exams will NOT follow the regular midterm/final exam policies defined in Course Requirements and Policies section above. Under no circumstances will a student be excused from an exam.

Course Grading Policy:

Your final course grade will be determined by the following:

| Category | Points | Total by subcategories |
|----------------------------------|-----------------|------------------------------------|
| Attendance | 10 points | Attendance & Participation 17 % |
| In-class Participation | 5 points | |
| <i>Speaker Questions (Bonus)</i> | <i>2 points</i> | |
| Team Paper 1 (HW1) | 10 points | Papers and Presentation 45% |
| Team Presentation (HW2) | 15 points | |
| Team Paper 2 (HW3) | 10 points | |
| Team Paper 3 (HW4) | 10 points | |
| CARMEN FINAL EXAM | 40 points | Final Exam 40% |

As stated in the course assignment policy section, there will be NO extra credit work available in this course.

The course grade will be converted to a letter grade for the course using the following grading scale:

| | | | | | | | | | |
|----|-----------|----|---------|----|----------|----|----------|---|----------|
| A | 93 – 100 | B+ | 87-89.9 | C+ | 77-79.9 | D+ | 67 –69.9 | E | Below 60 |
| A- | 90 – 92.9 | B | 83-86.9 | C | 73-76.9 | D | 60 –66.9 | | |
| | | B- | 80-82.9 | C- | 70 –72.9 | | | | |

Prof. Pirim reserves the right to correct grades recorded on the course website, should he determine such entries were posted incompletely or incorrectly.

Academic Integrity Policy:

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.

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Melissa Mayhan, at titleix@osu.edu

Mental health

A recent American College Health Survey found stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other, and alcohol use among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the semester are encouraged to contact Ohio State University Counseling and Consultation Service (614-292-5766; www.ccs.osu.edu) for assistance, support and advocacy. This service is free and confidential.

Accommodations for Accessibility:

Student COVID-related Accommodation Process

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 (slds.osu.edu/covid-19-info/covid-related-accommodation-requests/), managed by Student Life Disability Services.

SLDS Requesting Accommodations

If you would like to request academic accommodations based on the impact of a disability qualified under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, contact your instructor privately as soon as possible to discuss your specific needs. The discussions are confidential.

To establish reasonable accommodations, I 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. Students registered with Student Life Disability Services should work directly with their [Assigned Access Specialist](#) to modify their accommodations or make additional COVID-based accommodation requests.

Please visit <http://ods.osu.edu> for more information.

SLDS contact information: slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

Tentative Course Schedule

The following describes the tentative class schedule. The topics covered on each proposed week may change as the semester progresses, but the general order will not vary. Students are required to read the appropriate papers and to watch the videos posted on CARMEN during the week they are posted.

It is also students' responsibility to check and follow weekly Carmen Modules, Assignments as well as Carmen Announcements every week.

The TENTATIVE course schedule is subject to change depending on the guest speakers' availabilities.

| Dates | Topic |
|------------------------------|--|
| Week 1 January 11 | Brief Review of Syllabus Course Introduction: What is Fintech? Industry Trends Cryptography and Distributed Ledger Technology |
| Week 2 January 18 | Cont'd Cryptography and Distributed Ledger Technology Mechanics of Bitcoin ASSIGNMENT 1: January 22nd by 11:59 PM |
| Week 3 January 25 | Blockchain Applications and Cryptocurrencies Cryptocurrency Market, Trading Environment, and Other Topics ASSIGNMENT 2: January 31st by 11:59 PM |
| Week 4 February 1 | <u>Class Presentation on Cryptocurrencies and DeFi platforms</u> Intro to Machine Learning and Its Applications in Finance |
| Week 5 February 8 | Linear Machine Learning and Intro to Orange3 Credit Modeling, Logistic Regression, and Random Forests ASSIGNMENT 3: February 12th by 11:59 PM |
| Week 6 February 15 | Accuracy of Classification Models; Marketplace Lending |

| | |
|---|--|
| | |
| <p>Week 7 February 22</p> | <p><i>Guest Speaker on November 27:</i> Guest Speaker on Fintech Space and Blockchain efforts in US and Ohio. <i>(The Bio will be posted on Carmen)</i></p> <p>Quantitative Investing, Reducing Complexity, and Textual Analysis</p> <p><i>ASSIGNMENT 4 February 21st by 11:59 PM</i></p> |
| <p>ONLINE Carmen Final Exam:</p> | <p>Available: Monday February 26th @ 5:00 PM – Wednesday February 28th @ 8:00 pm</p> <p>(Once you start the exam, you will have 1 hour 45 minutes)</p> |

Good Luck.