

Data Science - Spring 2022 Orientation

Dr. Ergün Şimşek

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dil.umbc.edu



Program Contacts



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ACADEMIC MATTERS

ADMINISTRATIVE MATTERS



Academic Programs

Graduate Certificate:

DATA 601 - Introduction to Data Science

Data Science

DATA 602 – Introduction to Data Analysis and Machine Learning

4 courses (12 credits)

DATA 603 - Platforms for Big Data Processing

DATA 604 - Data Management

You should get a B or better grade in all four!

One course per semester

Spring 2022	Fall 22	Spring 23	Fall 23
DATA 601 Introduction to Data Science	DATA 604 Data Management	DATA 602 Data Analysis and Machine Learning	DATA 603 Platforms for Big Data Processing

Two courses per semester

Spring 22	Fall 22
DATA 601 Introduction to Data Science	DATA 602 Data Analysis and Machine Learning
DATA 604 Data Management	DATA 603 Platforms for Big Data Processing

WUMBC—Academic Programs: MPS

Master of Professional Studies:

Data Science

10 courses 30 credits

- 1) DATA 601 Introduction to Data Science
- 2) DATA 602 Introduction to Data Analysis and Machine Learning
- 3) DATA 603 Platforms for Big Data Processing
- 4) DATA 604 Data Management
- 5) DATA 605 Ethical and Legal Issues in Data Science
- 6) DATA 606 Capstone in Data Science
- 7) ENMG 652 Management Leadership and Communications
- 8) Pathway Elective I
- 9) Pathway Elective II
- 10) Pathway Elective III

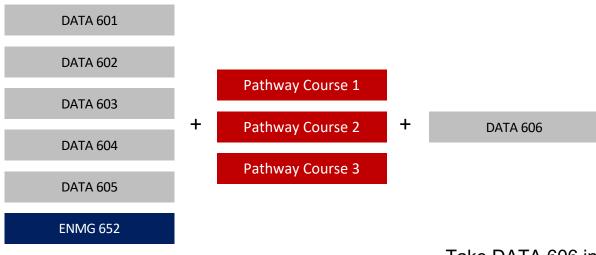


Academic Programs

Master of Professional Studies:

Data Science

10 courses 30 credits



Take DATA 606 in your final semester

WUMBC MPS Data Science Pathways

- Health IT (HIT)
- Management Science (COEIT)
- Project Management (COEIT)
- Cybersecurity (CS)
- Public Policy
- Econometry
- Advanced Computing (CS)
- Advanced Analysis (IS)
- Aging Studies
- Bioinformatics (NIH FAES)

Professional Programs



Pathway Samples

Cybersecurity Pathway

- CYBR 620 : Introduction to Cybersecurity
- CYBR 650: Managing Cybersecurity Operations
- CYBR 658: Risk Analysis and Compliance

Project Management Pathway

- ENMG 650: Project Management Fundamentals
- ENMG 661: Leading Virtual Global Teams
- ENMG 663: Advanced Project Management Applications

Bioinformatics Pathway

- BIOF 450 Bioinformatics, Evolutionary Genomics, and Computational Biology
- BIOF 518 Theoretical and Applied Bioinformatics
- BIOF 521 Bioinformatics for Analysis of Next Generation Sequencing

Healthcare Analysis Pathway

- HIT 658: Health Informatics I
- HIT 674: Process and Quality Improvement within Health IT
- HIT 723: Public Health Informatics
- HIT 751: Introduction to Healthcare Databases
- HIT 759: Health Informatics II

Advanced Computer and Analytics

- CMSC 636 Data Visualization
- CMSC 661 Principles of Database Systems
- CMSC 671 Principles of Artificial Intelligence
- CMSC 673 Introduction to Natural Language Processing
- CMSC 675 Introduction to Neural Networks
- CMSC 678 Machine Learning
- .



Registering Non-DS Courses: PP Courses

The courses offered within Professional Programs are easier than taking courses from CS, IS, Econ, and Statistics departments due to prerequisites defined by those departments. So, if you want to take courses from professional programs, please contact graduate program directors of each program listed below or visit the websites mentioned:

- Cybersecurity visit http://cyberia.umbc.edu/
 - Review the policy/process
 - Complete the request form
- Health IT GPD: Dr. Erin Van Dyke (<u>evandyk1@umbc.edu</u>)
- Software Engineering: Dr. Mohammad Samarah (<u>msamarah@umbc.edu</u>)
- Engineering or Technical Management GPD: Dr. Toby Gouker (tgouker@umbc.edu)



Registering Non-DS Courses: Non-PP Courses

- Information Systems (IS) courses → contact Ms. Shannon Keegan (<u>keegan@umbc.edu</u>) for course permission. Note that most of the data science related IS courses are very popular among IS students. Frequently, non-IS students can't take IS students due to space unavailability.
- **Economics/Econometry** courses → Prof. Thomas Gindling (<u>tgindlin@umbc.edu</u>) for course permission. Note that students are required to **have a background in economics** in order to choose this pathway. Additionally, certain courses have specific prerequisites.
- Students interested in taking course in **Computer Science** (CS) should have **an undergraduate degree in CS**. They should contact first the instructor of the course. If that instructor allows you to take his/her class, then please contact the CS Graduate Program Director, Prof. Charles Nicholas (<u>nicholas@umbc.edu</u>) to ask for permission (do not forget to mention in your email that 1. you have an undergraduate degree in CS; 2. you are an MPS student; 3. you have the approval of the course instructor).
- Public Policy courses → contact Prof. Tim Brennan (<u>brennan@umbc.edu</u>) for course permission.



Some Notes About Pathways

- Please take your time and examine the courses offered by other programs to choose your pathway/electives.
- You don't have to take all your electives from the same pathway.
- Not all pathway courses are offered every semester.
- Some (esp. technical) courses will have pre-requisites.
- Appropriate graduate/professional student skills are a must.



Can I take a class at the Shady Grove Campus?

- If you are willing to drive there, yes
- If it is an online class, yes

but you will need a permission!

If you are serious, email me the course number (e.g., BTEC 665-02) and your Campus ID



BOOKMARK THESE ADDRESSES

Static Page: https://datascience.umbc.edu

Dynamic Page: https://dil.umbc.edu

Graduate Catalog: https://catalog.umbc.edu/index.php

Ultimate Source: https://www.google.com



https://dil.umbc.edu

- Where can I find the
 - Syllabi of the Data Science courses? ==> Click me
 - Descriptions of the graduate courses? ==> <u>Click me</u>
 - Schedules of Professional Programs courses? ==> <u>Click me</u>
 - Schedules of all classes? ==> Click me
- What classes should I take this upcoming semester? ==> <u>Click me</u>
- How do I register for Data Science classes? ==> Click me
- How can I register for classes offered by other programs/departments? ==> <u>Click</u>
 me



Typical Schedule: 2 Course per Semester

Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024
Introduction to Data Science	Data Analysis and Machine Learning	Big Data Tools	Technical Elective	Capstone Project
Data Management	Management, Leadership & Data Ethics Communications		Technical Elective	Technical Elective



Fastest Route

Spring 2022	Summer 2022	Fall 2022	Spring 2023
Introduction to Data Science	Data Ethics	Data Analysis and Machine Learning	Capstone Project
Data Management		Big Data Tools	Elective
Management, Leadership & Communications		Elective	Elective

!!! DANGER !!!

No time for job search + interviews



Typical Schedule: 3 Course per Semester

Spring 2022	Fall 2022	Spring 2023	Summer 2023	Fall 2023
Introduction to Data Science	Data Analysis and Machine Learning	Big Data Tools		
Data Management	Data Ethics	Technical Elective	INTERNSHIP	Capstone Project
Management, Leadership & Communications	Technical Elective	Technical Elective		

+ Job Search



Spring Courses for New Students

DATA 601 - Introduction to Data Science					
DATA 602 - Introduction to Data Analysis and Machine Learning	Not recommended if you are not CS				
DATA 603 - Platforms for Big Data Processing Not recommended if you are not					
DATA 604 - Data Management					
DATA 605 - Ethical and Legal Issues in Data Science					
DATA 690 – Statistical Analysis and Visualization with Python	For beginners only				
DATA 690 – Data Structures and Algorithms in Python	To learn Python in depth				
ENGM 652 - Management, Communication, and Leadership					



Summer 2022 Course Schedule

- DATA 602
- DATA 603
- DATA 604
- DATA 605
- DATA 606

ONLY ONE SECTION OF EACH

https://registrar.umbc.edu/summer-academic-calendar/



Fall 22 DATA Courses

- 7 sections of DATA 601
- 6 sections of DATA 602
- 6 sections of DATA 603
- 7 sections of DATA 604
- 6 sections of DATA 605
- 4 sections of DATA 606
- 1 section of DATA 690 Stats and Viz, DATA 690 DSAP, DATA 690 Finance DS, DATA 690 Intro to NLP, and DATA 690 AI for Practitioners



Registration Appointments

When can I register for classes? Well, it depends...

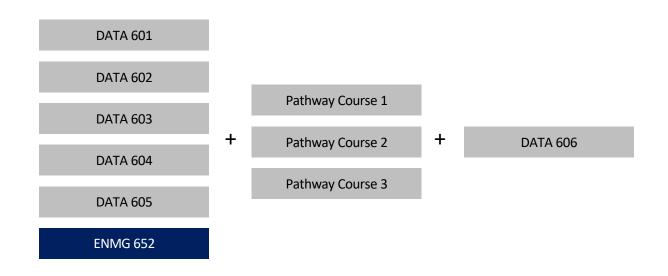
Spring 22

Date	Time	Students Eligible
11/01/2021	9:30am	49 or greater earned credits
11/01/2021	1:30pm	37 or greater earned credits
11/02/2021	9:30am	25 or greater earned credits
11/02/2021	1:30pm	12 or greater earned credits
11/03/2021	9:30am	less than 12 earned credits

https://registrar.umbc.edu/calendars/registration-appointments/



MPS in Data Science Curriculum





Equivalent Courses

DATA 605 Ethical and Legal Iss.

- SENG 601 Ethics in Software Engineering
- ENMG 656 Engineering Law and Ethics

You can take SENG 601 or ENMG 656 if you can't find a seat in DATA 605.

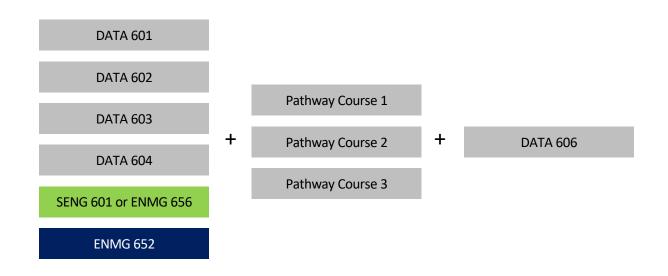
ENMG 652 Mngt, Comm, Ldr.

- BTEC 665 Management,
 Leadership and Communication
- ENTR 602 Leadership and Communications

You can take ENTR 602 or BTEC 665 if you can't find a seat in ENMG 652.

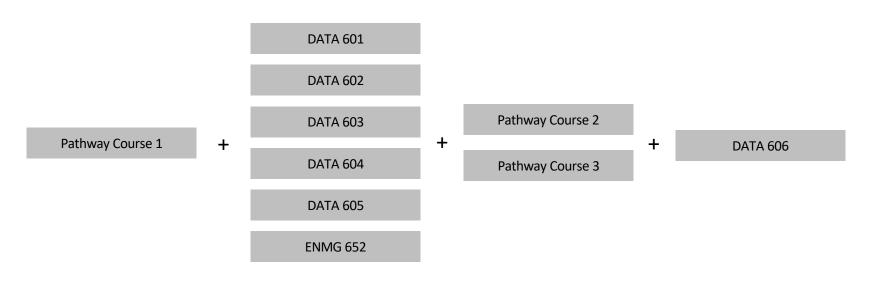


MPS in Data Science Curriculum





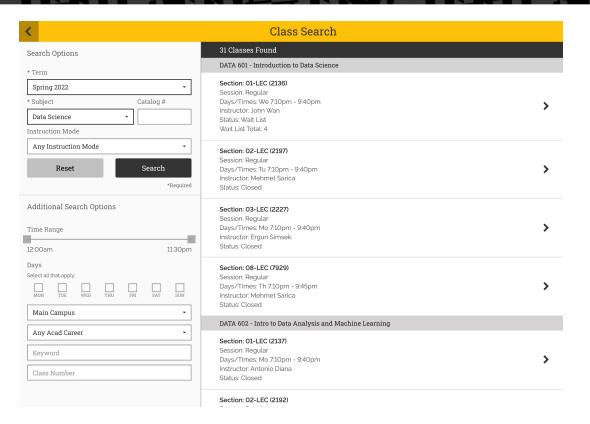
MPS in Data Science Curriculum



DATA 690 Statistical Analysis and Visualization with Python or

DATA 690 Data Structures and Algorithms in Python

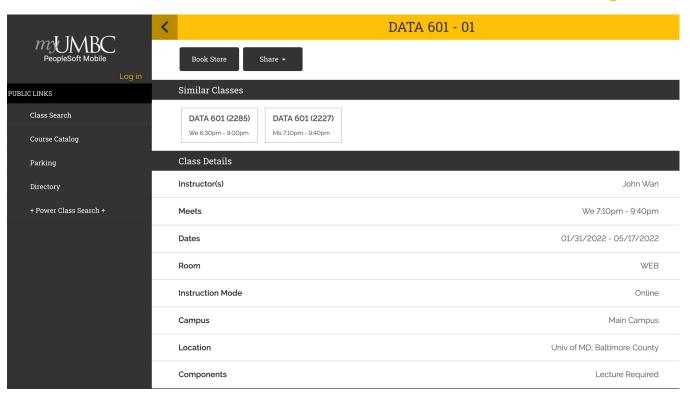




https://highpoint-prd.ps.umbc.edu/app/catalog/classSearch



Instruction Mode and Campus





Professional Programs Courses

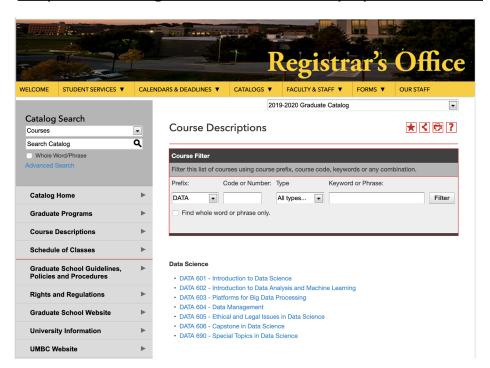
http://dps.umbc.edu/schedule/

CYBR	691	Special Topics in Cybersecurity. : Intro to ICS Security
CYBR	691	Special Topics in Cybersecurity. : Practical Data Networking
CYBR	691	Special Topics in Cybersecurity. : Mobile Device Management
DATA	601	Introduction to Data Science
DATA	601	Introduction to Data Science
DATA	601	Introduction to Data Science
DATA	601	Introduction to Data Science
DATA	602	Intro to Data Analysis and Machine Learning
DATA	602	Intro to Data Analysis and Machine Learning
DATA	603	Platforms for Big Data Processing
DATA	603	Platforms for Big Data Processing
DATA	604	Data Management
DATA	604	Data Management
DATA	605	Ethical And Legal Issues in Data Science
DATA	606	Capstone in Data Science
DATA	606	Capstone in Data Science
DATA	690	Special Topics in Data Science : Intro to Natural Language Proc
DATA	690	Special Topics in Data Science : Stats & Visualization
DATA	690	Special Topics in Data Science : Data Structures & Algorithms



Graduate Catalog

https://catalog.umbc.edu/index.php?catoid=30



WUMBC - Spring 2022 Schedule of Classes

Monday	Tuesday	Wednesday	Thursday
601 – 03 (2227)	601 – 02 (2197)	601 – 01 (2136)	601 – 08 (7929)
7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm
Instructor: Ergun Simsek	Instructor: Mehmet Sarica	Instructor: John Wan	Instructor: Mehmet Sarica
602 - 01 (2137) 7:10pm - 9:40pm Instructor: Antonio Diana	602 - 02 (2192) 7:10pm - 9:40pm Instructor: Venkatesh Krishnamoorthy	602 - 03 (7508) 7:10pm - 9:40pm Instructor: Christopher McGraw	602 - 04 (7509) 7:10pm - 9:40pm Instructor: Devin Fensterheim
602 - 06 (7873)	603 - 02 (2316)	603 - 04 (7512)	603 - 03 (7511)
7:10pm - 9:40pm	7:10pm - 9:40pm	6:10pm - 8:40 pm	7:10pm - 9:40pm
Instructor: Xin Xue	Instructor: Donghwa Kim	Instructor: James Klucar	Instructor: Andrew Enkeboll
603 - 01 (2138)	604 - 02 (2273)	605 - 01 (2194)	603 - 05 (7947)
7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm
Instructor: Waleed Youssef	Instructor: Syed Nabeel	Instructor: Matthew Esworthy	Instructor: Manvendra Jhala
604 - 03 (2377)	604 - 05 (7959)	606 - 02 (2254)	604 - 01 (2193)
7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm	7:10pm - 9:40pm
Instructor: Jyotsna Potarazu	Instructor: Jyotsna Potarazu	Instructor: Chaojie Wang	Instructor: Charles Givre



Monday	Tuesday	Wednesday	Thursday
605 - 04 (7907) 7:10pm - 9:40pm Instructor: Sunela Thomas	605 – 02 (2317) 7:10pm - 9:40pm Instructor: Jennifer Esworthy	690 - 05 (2323) Topic: Financial Data Science 6:00pm - 8:30 pm Instructor: Abdullah Karasan	605 - 03 (7818) 7:10pm - 9:40pm Instructor: Sunela Thomas
606 - 01 (2195) 7:10pm - 9:40pm Instructor: Ozgur Ozturk	690 - 01 (2252) Topic: Stats & Visualization 7:10pm - 9:40pm Instructor: Sunela Thomas		690 - 02 (2253) Topic: Intro to Natural Language Processing 6:30pm - 9:00pm Instructor: Antonio Diana
690 - 01 (2252) Topic: Stats & Visualization 7:10pm - 9:40pm Instructor: Sunela Thomas			
690 - 04 (2322) Topic: Artificial Intelligence Pract 7:10pm - 9:40pm Instructor: Patty Delafuente			WEB 690 - 03 (2267) Topic: Data Structures & Algorithms 7:10pm - 9:40pm Instructor: Donghwa Kim
690 - 06 (7928) Topic: Stats & Visualization 7:10pm - 9:40pm Instructor: Chaojie Wang			



Academic Misconduct

41 STUDENTS in FALL 2021

- Cheating
- Plagiarism
- Fake data

copy, paste, modify is not acceptable

DO NOT CONTACT ME

IF YOU GET INVOLVED IN AN

ACADEMIC MISCONDUCT CASE

I WILL NOT HELP YOU



How to prevent Academic Misconduct

- Try to complete your assignments on your own or only with your group-mates if it is a group project
- If you get stuck,
 - talk to your classmates
 - do a Google search —
 - get help from our tutors
- Always cite properly

If you find the answer, perfect, read it, understand it, close that website, and write your own code

copy, paste, modify is not acceptable



Find the 21 differences

To	sort by	Level, clic	ck the colu	umn headin	ıg.	Т	ranscript Acc	cess	Save U	Jsed Flags	8
							Persor	nalize Find View 4 💷 🌉	First 1-	10 of 10	Las
	Course	Level	Term	Class Nbr	Class Section	Used?	Status	Description	Attempted	Earned	Grade
1	DATA	601	2198	7582	03		Enrolled	Introduction to Data Science	3.00	3.00	Α
2	DATA	602	2202	7156	02	~	Enrolled	Intro to Data Analysis	3.00	3.00	Α
3	DATA	603	2208	13273	04	~	Enrolled	Big Data Processing	3.00	3.00	Α
4	DATA	604	2198	7853	02	~	Enrolled	Data Management	3.00	3.00	Α
5	DATA	605	2206	2680	01		Enrolled	Ethical Issues in Data Sci.	3.00	3.00	Α
6	DATA	606	2218	15397	03		Enrolled	Capstone in Data Science	3.00	3.00	
7	ENMG	652	2208	1445	02		Enrolled	Mgmt,Leadership And Com	3.00	3.00	Α
8	ENMG	659	2212	7035	01		Enrolled	Strategic Management	3.00	3.00	Α
9	ENMG	661	2202	5617	01		Enrolled	Leading Virtual Global Teams	3.00	3.00	Α
10	ENMG	692	2212	11632	01	~	Enrolled	Principl. of Organiz. Learning	3.00	3.00	Α

Class registration is not a game. Plan ahead and Process it!

Each add/drop might affect other students!

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	Personalize Find View 4 🖾								
	Course	Level	Term	Class Nbr	Class Section	Used?	Status	Description	
1	DATA	601	2188	8343	03		Dropped	Introduction to Data Science	
2	GES	671	2198	5013	01		Dropped	Spatial Database I	
3	CMSC	621	2188	6398	01		Dropped	Adv Operating Systems	
4	CMSC	673	2198	7488	01		Dropped	Intro Nat Lang Process	
5	DATA	690	2198	7979	01		Dropped	Special Topics in Data Science	
6	GES	776	2198	8145	01		Dropped	GIS Data Sources	
7	CMSC	641	2192	7440	01		Dropped	Design & Analy Algorthms	
8	GES	774	2198	8144	01		Dropped	Spatial Statistics	
9	GES	775	2198	7377	1		Dropped	Adv. GIS App. Development	
10	DATA	606	2188	7871	01		Dropped	Capstone in Data Science	
11	GES	687	2202	7785	01		Dropped	Adv Appl Geog Info Sys	
12	ENMG	652	2188	7643	02		Dropped	Mgmt,Leadership And Com	
13	DATA	690	2202	7851	01		Dropped	Special Topics in Data Science	
14	CMSC	671	2198	5600	01		Dropped	Prin Artificial Intell	
15	DATA	602	2188	8357	02		Dropped	Intro to Data Analysis	
16	DATA	605	2192	8107	01		Enrolled	Ethical Issues in Data Sci.	
17	ENMG	652	2192	4251	01		Enrolled	Mgmt,Leadership And Com	
18	DATA	604	2192	8105	01		Enrolled	Data Management	
19	DATA	603	2188	7868	01		Enrolled	Big Data Processing	
20	DATA	601	2188	7865	01		Enrolled	Introduction to Data Science	
21	DATA	602	2188	7867	01		Enrolled	Intro to Data Analysis	
22	PRAC	98B	2202	5353	01		Enrolled	Internship Experience	
23	ENMG	680	2202	7108	01		Enrolled	Internat. Project Management	
24	CMSC	636	2198	6539	01		Enrolled	Data Visualization	
25	DATA	606	2202	7161	01		Enrolled	Capstone in Data Science	
26	DATA	690	2202	8047	03		Enrolled	Special Topics in Data Science	
27	GRAD	601	2198	1058	01		Enrolled	Graduate Assistantship FT	
28	GES	688	2198	7996	01		Enrolled	Spatial Data Analysis&GIS App	
29	PRAC	98B	2198	1139	01	0	Enrolled	Internship Experience	
30	GES	686	2198	4408	100		Enrolled	Intro Geog Info Systems	
31	GES	686	2198	4409	101		Enrolled	Intro Geog Info Systems	



Communication

- DATA e-mail listserv <= announcements
- DATA program faculty => before/after class meetings and/or at other times (in person/phone/online) by appointment.
- Best way to communicate with me => simsek@umbc.edu

In your emails, please provide your student number

PLEAS DO NOT EMAIL ME BEFORE YOU READ



Please read

Permission for Data 690 > Inbox ×













Hello Professor, Can you give me permission for the below course? 15385 Artificial Intelligence Pract We 7:10pm - 9:40pm Informati...



Ergun Simsek

9:46 AM (1 hour ago)

9:41 AM (1 hour ago)







11:06 AM (5 minutes ago)







Hello Professor,

I didn't receive the permission email.

Thanks & Regards

Satyaki Dixit



Please Participate

When we

- ask your input for planning
- need volunteers
- organize events



Some Important Dates

Spring 2022

First Day of Classes	January 31
Last Day to Add/Drop A Course	February 11
Spring Break	March 20 - 27
Last Day of Classes	May 17
Reading Day	May 18
Final Exams	May 19 - 25

https://registrar.umbc.edu/spring-graduate-academic-calendar/



Some Important Dates

Drop/Withdrawal Date	Percent of tuition & fees refunded*
January 31 – February 4	100%
February 5 – February 11 Swap Period	80%
February 12 – February 18	60%
February 19 – February 25	40%
February 26 – March 4	20%
After March 4	0%

https://sbs.umbc.edu/spring-2022-drop-withdrawal/



Laptop Suggestions

- 8+ GB of RAM
- 1+ TB SSD storage
- Graphics/video card (GPU)



- OS: Linux, Windows, Mac OS?
- Python 3 https://www.python.org/downloads/
- Anaconda https://www.anaconda.com/distribution/



Finding Your First Internship / Job

- 1. Create a 1-page killer resume (with a clear objective, education history, relevant course load, list of sample projects, links to linkedin profile and github accounts, programming/data science experience/skills/tools, etc.)
- 2. Actively search for opportunities on linkedin, <u>indeed.com</u>, <u>monster.com</u>, etc.
- 3. Network with classmates who work in the fields of data science/it/cs
- 4. Attend local data science meetup events and workshops, but don't be quiet, ask smart questions, try to mingle with attendees, organizers, and speakers
- 5. Participate hackathons, kaggle competitions, or other types of competitions organized by local companies



Graduate Tutors

Name	Email
Sai Divyanjali Muddasani	smuddas1@umbc.edu
Rohith Ram Maringanti	rohithm2@umbc.edu
FNU Ujjwal	PF10610@umbc.edu
Chirag J. Jadav	chiragj1@umbc.edu
Chetan B Desai	cdesai2@umbc.edu
Satyaki Dixit	sdixit2@umbc.edu
Rohan Jacob	rjacob2@umbc.edu
Nishit Vyas	nvyas1@umbc.edu

COURSE ASSIGNMENTS and HOURS: TBA Check our information hub later



Campus Resources

- **Inclement Weather:** You can check on the status of closings online. Also please sign up for campus alerts through E2Campus by visiting https://my3.my.umbc.edu/alerts.
- Career Services: Students automatically receive UMBCworks accounts as you register. This online recruiting and job/internship listing system allows you to view and apply for full-time, internships/co-ops, part-time and temporary opportunities. careers.umbc.edu.
- OIT Help Desk: Call 410-455-3838 or enter a help ticket online through your myUMBC account.
- Graduate School/Graduation: 410-455-2537 http://www.umbc.edu/gradschool/
- UMBC Registrar: http://registrar.umbc.edu/
- Veterans Affairs: http://veterans.umbc.edu/contact-us/
- Financial Aid Office: www.umbc.edu/financialaid



Mark Your Calendars

Friday, February 18, 2022 · 9:30 AM - 2 PM

International Student Career Conference Session#1

Career and Immigration Information

Library and Gallery, Albin O. Kuhn: 7th Floor

https://my3.my.umbc.edu/groups/careers/events/98602

VIRTUAL: Friday, February 25, 2022

UMBC Spring 2022 Career & Internship Fair

11:30 AM-3:30 PM

https://careers2.umbc.edu/calendar/fairs/springcareerfair2022.php

Thursday, April 7, 2022 · 4 - 6 PM

Career Paths for Graduate Students

The Commons : Skylight Room

VISIT FOR MORE EVENTS

https://my3.my.umbc.edu/groups/careers



For International Students Only

- You need to take at least 3 classes (unless it is your last semester)
- You need to take at least one in-person class if you want Spring semester counts towards your CPT/OPT
- We can't help you with finding TA/RA jobs, please use UMBCworks
- There is a specific procedure you need to follow if you find an internship
 https://isss.umbc.edu/international-students-f-1/current-students-employment/
- You can travel overseas during winter break, spring break (not recommended this year), or Summer semester but please follow the COVID-19 guidelines



If your course registration is incomplete, please fill out this form right now

https://forms.gle/6tXRmrJjYzJ72TKb7

but please be considerate!



Last Words: If you want to succeed

- Do not limit yourself to what we cover
- Do not depend on others
- Play the game right
- Endurance is the key