CU DENVER **BUSINESS** SCHOOL

INFORMATION SYSTEMS STUDENT GUIDEBOOK

University of Colorado **Denver**

Revised for Spring 2021

Welcome to the Information Systems Department at the University of Colorado Denver

I want to welcome each of you to the Information Systems program at the University of Colorado Denver. The Information Systems faculty and Business School staff are excited to have you on our campus.

Information Systems professionals use technical skills, business know-how, and administrative insights to help companies make decisions on the acquisition, implementation, and management of technology. We are here to help you master these skills in order to develop a keen insight into how businesses work. Information Systems knowledge is always in demand.

CU Denver also offers exceptional opportunities to participate in activities outside the classroom that add value to your time inside the classroom. Be sure to take advantage of our student clubs, internship opportunities and many speaker events.

A major priority of our Information Systems department is to place students in challenging and rewarding business careers that will utilize their Information Systems degree. The path to job placement begins well-before graduation so it is never too early to start planning. We have created this Guidebook as a resource to reference during your time at CU Denver. Whether you are pursuing a Bachelor's degree and/or a Master's of Science in Information Systems, the information contained in this Guidebook will help you make informed decisions about your future.

The Information Systems faculty, Graduate and Undergraduate Advisors, and Business Career Connections are here to guide you along your path to a fulfilling career in Information Systems.

Please feel free to contact me if you would like further information.

Dawn Gregg
Discipline Director, Information Systems
Professor of Information Systems
Business School | University of Colorado Denver
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Information Systems Career Paths

Information Systems is a dynamic career field focused on the deployment of various information technologies in ways that help organizations achieve their strategic goals and operational objectives. Information technologies are among the most value adding processes in organizations, creating a demand for skilled individuals who can think in terms of the company's business, technology, and organizational or "people" strategies in a way that ensures each is aligned with and reinforcing of the other two.

n information systems graduate will possess the skills and insights needed to understand both business processes and the technologies available to support them. Success in information systems requires analytical skills, logic and creativity, as well as excellent interpersonal and communication abilities.

Primary Areas of Employment for Information Systems Majors:

Virtually every organization, businesses in all industries, government entities, or not-for-profit groups, depends on information technology and, as a result, adds to the demand for information systems professionals. Some positions are more technical than analytical, and some organizations choose to place entry level employees in these sorts of positions to "learn the ropes."

In other cases, companies will place the new team member in a business or process analyst role under the supervision of a veteran manager. Consulting firms providing information systems-related solutions to their clients are another area of employment for an information systems graduate. Whatever the role and whatever the specific technology involved, the focus will be on the value-adding from integrating of information technology into the organization.

Typical Information Systems Job Titles

- Application Analyst

Business Career Connections helps students prepare for careers in information systems. This preparation, from resumes to interview prep to compensation negotiation, can make a real difference in getting noticed and hired by great employers. The information systems recruiting process is different from all other disciplines and understanding how it works is critical to success. Come see us sooner rather than later or contact us: bcc@ucdenver.edu

– Sue Wyman, Director BCC

- Business Analyst
- Cloud Architect
- Cybersecurity Analyst
- Data Analyst
- Data Scientist
- Database Administrator
- Information Systems Manager
- IT Consultant
- IT Technical Support
- Network Engineer
- Software Engineer
- Systems Analyst
- Web Developer

Additional information on careers in information systems is available at the following sites:

www.aisnet.org – Association for Information Systems

www.simnet.org – Society of Information Management

www.isjobs.com – Portal to multiple sites

www.aftercollege.com/career-networks/university-of-colorado-denver/department-of-information-systems/jobs/

www.salary.com – Compensation information for various positions in information systems

www.buzzfile.com/Major/Management-Information-Systems – List of IS employers by state.

Guidance by Year

It's never too early to start laying the groundwork for a successful career in Information Systems. Whether you're joining the CU Denver Information Systems department as a freshman, as a transfer student or as a graduate student, below you will find helpful guidance to consider along your academic journey.

Freshman/Sophomore

Meet with your advisor to map out your degree plan. Call (303) 315-8110 to set up a phone or office appointment.

Visit Business Career Connections (BCC) on the 4th floor of the Business Building to identify and assess career opportunities and to start building your resume and LinkedIn profile. Contact BCC: bcc@ucdenver.edu.

Sign up for Handshake (CU Denver's Career, Jobs, and Event Information): ucdenver.joinhandshake.com/login.

Learn what is needed for a successful Information Systems career by utilizing the resources provided in this guidebook, attending Information Systems department events and attending the numerous Information Systems Association (ISA) and Transamerica Cybersecurity and Digital Forensics Student Club meetings that are open to all students.

Apply for scholarships: ucdenver.academicworks.com/.

Connect regularly with your advisor through scheduled appointments or by email: undergrad.advising@ucdenver.edu.

Junior

If you are a transfer student, **meet with your advisor to map out your degree plan**. Call (303) 315-8110 to set up a phone or office appointment.

Complete internship training through either a BCC Career Essentials Workshop business.ucdenver.edu/bcc or the Experiential Learning Center ucdenver.edu/life/services/ExperientialLearning.

After completing the training, you will be able to **apply for internships on Handshake**.

Join the Information Systems Association (ISA) and/or **Transamerica Cybersecurity and Digital Forensics Student Club**. If you do not join one of the clubs, then attend the numerous club meetings that are open to all students.

Start building a professional network by attending *Become a Business Leader with an Edge* in the fall semester, Business School Career Fairs and Information Systems department events.

Interview for internships early in the fall semester.

Complete internships during spring, summer or fall. Multiple internships are encouraged.

Seek exposure to as many technologies as possible, even at a familiarization rather than proficiency level.

Develop personal skills including: customer focus, problem solving, self-direction, team orientation, analysis, and research.

Meet with your advisor to discuss applying for the 4+1 program. The 4+1 program allows a seamless transition from the CU Denver undergraduate Information Systems program the MS Information Systems program with a specialization in either the Business Intelligence or the Cybersecurity and Information Assurance specializations. Students with a 3.0 GPA in the sophomore and junior courses (ISMG 2800, 3500 and 3600) can request a waiver of the GMAT exam. For more information about the 4+1 program, contact courtney.burkett@ucdenver.edu.

If you choose to pursue a graduate degree outside of CU Denver, **plan for when you will take the GMAT exam.**

Apply for scholarships: ucdenver.academicworks.com/.

Connect regularly with your advisor through scheduled appointments or by email: undergrad.advising@ucdenver.edu.

Senior

Meet with your advisor to make sure you are on track to graduate. Call (303) 315-8110 to set up a phone or office appointment.

Be actively involved in the Information Systems Association (ISA) and/or **Transamerica Cybersecurity and Digital Forensics Student Club**. If you do not join one of the clubs, then attend the numerous club meetings that are open to all students.

Continue building a professional network by attending *Become a Business Leader with an Edge* in the fall semester, Business School Career Fairs and Information Systems department events.

Interview for internships early in the fall semester.

Complete internships during spring, summer or fall. Multiple internships are encouraged.

Continue building a portfolio of technologies you are familiar with. Consider certifications for key technologies related to your chosen career path.

Continue develop personal skills including: customer focus, problem solving, self-direction, team orientation, analysis, and research.

Apply for scholarships: ucdenver.academicworks.com/.

Connect regularly with your advisor through scheduled appointments or by email, undergrad.advising@ucdenver.edu.

Graduate

Meet with your advisor to map out your graduate degree plan. Call (303) 315-8110 to set up a phone or office appointment.

Join the Information Systems Association (ISA) and/or **Transamerica Cybersecurity and Digital Forensics Student Club**. If you do not join one of the clubs, then attend the numerous club meetings that are open to all students.

Interview for internships during spring, summer or fall.

Complete internships during spring, summer or fall. Multiple internships are encouraged.

Build a portfolio of technologies you are familiar with. Consider certifications for key technologies related to your chosen career path.

Develop personal skills including: customer focus, problem solving, self-direction, team orientation, analysis, and research.

Build a professional network by attending *Meet the Firms* in the fall and spring semesters, Business School Career Fairs and Information Systems department events.

Apply for scholarships: ucdenver.academicworks.com/.

Connect regularly with your advisor through scheduled appointments or by email: grad.advising@ucdenver.edu.

Undergraduate Information Systems Courses

While it is critical to meet with your advisor to map out your degree plan, below is information on Information Systems courses that will help guide your path to graduation.

Take all of the following courses:

ISMG 2800 - Designing for the Web

ISMG 3500 - Enterprise Data and Content Management

ISMG 3600 - System Strategy, Architecture and Design

ISMG 4400 - Web Application Development *Prereq: ISMG 2800 Coreq: ISMG 3500*

ISMG 4700 - Business Data Communications and Networking

ISMG 4900 - Project Management and Practice

*Some of these courses may be offered during the summer others may only be offered one time a year. It is **vital** to take these courses following a logical progression*

Optimal Sequence for Information Systems Courses

Sophomore Year

ISMG 2800 - Designing for the Web

Junior Year

ISMG 3500 - Enterprise Data and Content Management

ISMG 3600 - System Strategy, Architecture and Design

Senior Year

ISMG 4400 - Web Application Development *Prereq: ISMG 2800 Coreq: ISMG 3500*

ISMG 4700 - Business Data Communications and Networking

ISMG 4900 - Project Management and Practice

Information Systems Electives

ISMG 3300 - Social Media in Business

ISMG 4300 - Information Security and Compliance

ISMG 4750 - Business Intelligence and Financial Modeling

ISMG 4760 - Customer Relationship Management

Students applying for the 4 + 1 program can take two senior level classes OR IS electives from the graduate program - shortening the time to get a graduate degree.

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Combining Undergraduate and Graduate Degrees

The MS Information Systems degree requires 30 credit hours of graduate work. As a current CU Denver Information Systems student, you can seamlessly transition from your undergraduate program into either graduate Information Systems program.

What is the 4+1 Program?

The 4+1 program allows CU Denver students early admission into the MS Information Systems program in their fourth or final year as an undergraduate. There are two benefits to our 4+1 program. First, CU Denver Information Systems students with a 3.0 or higher GPA in their undergraduate Information Systems courses (ISMG 2800, 3500 and 3600) can be accepted into the program without taking the GMAT exam. Second, some students can take two graduate level courses in their senior year, with those six credit hours counting toward both the undergraduate and MS degrees. With the assistance of advisor Courtney Burkett (courtney.burkett@ucdenver.edu), you can select two graduate Information Systems courses that will take the place of two undergraduate Information Systems courses.

Scholarships are a hallmark of the Business School and are available to students in all academic areas. Though they can significantly reduce financial burden, they go way beyond tuition support alone. Recipients are often motivated to strive for academic excellence and they carry immense value when mentioned on a resume or in a job interview.

**Enrico Leone,
Academic Services**

When should I apply to the 4+1 Program?

You should apply to the 4+1 program when you have one academic year remaining in your undergraduate degree. In addition, you must have successfully completed the Information Systems courses (ISMG 2800, 3500 and 3600). Please contact advisor Courtney Burkett (courtney.burkett@ucdenver.edu) for application details and deadlines.

I'm a Senior about to graduate. Does that mean I can't pursue a graduate degree in Information Systems at CU Denver?

No! While you might not be able to take advantage of the 4+1 program, you can still earn your MS degree with us. CU Denver Information Systems students with a 3.0 or higher GPA in their undergraduate Information Systems courses can be accepted into the MS Information Systems degree without taking the GMAT exam.

Do I have to finish my 4+1 degree in five years?

No. Many students complete the 30 credit hours of their MS degree in one calendar year (taking classes in Fall, Spring and Summer) while others choose to complete their degree at a slower pace.

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MS Information Systems Courses

The Master of Science in Information Systems (MSIS) program at the Business School is a 30 semester credit hour STEM (Science, Technology, Engineering, Mathematics) degree program that provides students the fundamental knowledge necessary for a career as an IS professional. The MSIS program layers managerial training with technical concepts to help you become a leader in your chosen career path in information technology. You can choose between industry leading specializations in Business Intelligence or Cybersecurity and Information Assurance or customize your own degree to allow you to focus on topics most relevant to your interests. With hands-on software projects, each class will take you one step closer to understanding how to harness the power of technology for business.

MS Information Systems students come from a wide variety of academic backgrounds. Therefore, it is critical to meet with your advisor to map out an individualized degree plan. Below is information on Information Systems courses that will guide your path to graduation.

For example, students with an undergraduate degree In Information Systems may waive some of the core graduate courses allowing you to take additional elective courses.

NOTE: The following may not apply to you if you were admitted under an older degree plan. Check with your advisor.

Core Courses

Required courses:

ISMG 6080 Database Management Systems

ISMG 6180 Information Systems Strategy

ISMG 6430 Information Systems Security and Privacy

Plus, select two of the following courses:

ISMG 6020 Programming Fundamentals with Python *

ISMG 6060 Analysis Modeling & Design

ISMG 6120 Network Design and Analysis *

ISMG 6220 Business Intelligence Systems and Analytics+

ISMG 6450 IT Project Management

ISMG 6830 IT Governance and Service Management

* required for Cybersecurity & Information Assurance Specialization
+ required for Business Intelligence Specialization

Elective Courses

Students may complete a four or five-course specialization or create customized degree using any course numbered 6000 or higher with an ISMG prefix (may include core classes not used to satisfy the core requirement). Selected 6000-level Business School, CVEN or CSCI courses may be used to satisfy up to 6 credits of elective credit for a customized degree.

Information Systems Graduate Specializations

Business Intelligence

Business Intelligence (BI) systems combine operational data with analytical tools to present complex and competitive information to planners and decision makers. The objective is to improve the timeliness and quality of inputs to the decision process. BI is used to understand the capabilities available in the firm; the state-of-the-art, trends, and future directions in the markets, the technologies, and the regulatory environment in which the firm competes; and the actions of competitors and the implications of these actions. With this specialization, you get the necessary skills and knowledge in real-time data warehousing, data visualization, data mining, online analytical processing, customer relationships management, dashboards and scorecards, corporate performance management, expert and advanced intelligent systems, and hands-on experience with leading BI tools.

BI Degree Requirements

Choose 4 of the following courses:

ISMG 6470 Text Data Analytics

ISMG 6480 Data Warehouse and Administration

ISMG 6810 Business Intelligence in Healthcare

ISMG 6820 Business Intelligence and Financial Modeling

BUSN 6530 Data Analysis for Managers (Students may substitute BANA 6610, *with approval of the BANA program*)

Students must complete the following core course:

ISMG 6220 Business Intelligence Systems and Analytics

Cybersecurity and Information Assurance

With recent breaches in the security of many large government agencies and private corporations, cybersecurity is an issue of great importance to the global society. The Cybersecurity and Information Assurance Specialization prepares students for cybersecurity, information security, and IT risk management positions in business and critical infrastructure sectors of the economy identified by the U.S. Department of Homeland Security including enterprises such as banks, governments, retail, health care institutions, law enforcement, construction, insurance agencies, transportation and the military.

Cybersecurity Degree Requirements

Students must complete ALL 5 courses

ISMG 6340 Cloud Computing Concepts, Tools, and Security

ISMG 6860 Ethical Hacking Concepts and Methodologies

ISMG 6890 IT Risk Management

ISMG 6865 Digital Forensic Analysis

ISMG 6910 Design Science Practicum or approved Internship with required paper and presentation to be completed during the final 9 credit hours of the program.

Students must complete the following core courses:

ISMG 6020 Programming Fundamentals with Python

ISMG 6120 Network Design and Analysis

Optimal Sequence for MS Information Systems Courses

These outlines are the optimal sequencing of MS Information Systems courses based on your specialization. Since many courses are only offered once a year, failing to take courses in the recommended sequence could delay your graduation.

Business Intelligence Specialization

Term	Fall Admission	Term	Spring Admission
FA	ISMG 6080	SA	ISMG 6080
FB	ISMG 6220	SB	ISMG 6220
SA	ISMG 6020* *ISMG 6830*	Su	ISMG 6450
SB	ISMG 6480 *BUSN 6530*	FA	ISMG 6810
Su	ISMG 6450	FB	ISMG 6430
FA	ISMG 6810	SA	ISMG 6820
FB	ISMG 6470 *BUSN 6530*	SB	ISMG 6480 *BUSN 6530*
SA	ISMG 6820	Su	ISMG 6180
SB	ISMG 6430	FA	ISMG 6020* *ISMG 6060*
Su	ISMG 6180	FB	ISMG 6470 *BUSN 6530*

Cybersecurity Specialization

Term	Fall Admission	Term	Spring Admission
FA	ISMG 6080	SA	ISMG 6080
FB	ISMG 6430	SB	ISMG 6430
SA	ISMG 6020	Su	ISMG 6340
SB	ISMG 6120	FA	ISMG 6860
Su	ISMG 6340	FB	ISMG 6890
FA	ISMG 6860	SA	ISMG 6865
FB	ISMG 6890	SB	ISMG 6120
SA	ISMG 6865	Su	ISMG 6180
SB	ISMG 6910	FA	ISMG 6020
Su	ISMG 6180	FB	ISMG 6910

* For students without a programming background, it is recommended that they take ISMG 6020 as their
free elective, prior to taking ISMG 6470 (Text Analytics)

The schedules above assume you will take one class each 8 week term for two years. If you are admitted in the summer, you take ISMG 6180 first, then follow the schedule for the Fall term. If you wish to accelerate your degree or take a term off, please talk to an advisor at grad.advising@ucdenver.edu to create the optimal degree plan.

Information Systems Association (ISA)

University of Colorado Denver's Information Systems Association is a growing community of Information Systems students which facilitates the engagement in higher education. Open to all CU Denver students, the Association provides its members networking, career development, and professional development opportunities.

Our core beliefs

We at ISA believe that students, regardless of major must harness the powers of the information age in order to have interesting and dynamic careers. Those who leverage their tools and resources are able to optimize businesses and create solutions that help the future of humanity. Not only is Information the key to solving the problems of the future, those that can understand and organize it see monetary success and flexible schedules.

Our Mission

We hope to bring to campus unique tech opportunities to help students find the career path. Our events include guest lectures, company tours, panels, social events, and networking opportunities.

The chapter is affiliated with the Association for Information Systems (AIS) and has won outstanding student chapter awards in 2018, 2013-2016 and 2010.

For more information

Find us on Facebook at: www.facebook.com/CUDenverISA/

Contact Jiban Khuntia, the ISA faculty advisor, at jiban.khuntia@ucdenver.edu

I believe the opportunities provided through the ISA club are invaluable. You can expand your network and build lasting relationships with individuals throughout CU Denver and the Denver IT community. Being an award-winning (six times) student chapter of the Association of Information Systems (AIS) the club connects to a larger research and practice community at the national and international levels. I would recommend getting involved in the ISA as early as possible and attending as many events as you can.

Jiban Khuntia,
Associate Professor of Information Systems

Transamerica Cybersecurity and Digital Forensics Student Association (TCSC)

What we do

The TCSC Is a student organization that aims to learn and teach hacking fundamentals, software engineering and other technology related topics to increase the skill sets of students. The cub provides a variety of resources to allow members to create side projects, workshops and more. Industry partners provide knowledge that help students improve their professional profiles. All students are welcome to join regardless of their major, knowledge, and skills!

Benefits Include:

Access to dedicated cybersecurity lab

Hacking Workshops

Certification/Learning Resources including Security+, CEH v10, Kali Linux

Raspberry Pi's

Leadership Opportunities

Industry Speakers

For More Information:

CU Denver students can join TCSC on MyLynx by simply looking up the name of the student club or following this link: https://ucdenver.presence.io/organization/transamerica-cybersecurity-and-digital-forensics-student-club

Contact Ersin Dincelli, the TCSC faculty advisor, at ersin.dincelli@ucdenver.edu

TCSC is one of the largest student clubs in the Business School. TCSC cybersecurity lab provides students access to an extensive library for cybersecurity related topics, microcomputers and other equipment that students use try hands-on cybersecurity exercises, computers that are equipped with cybersecurity tools, a 3D printer, and various cybersecurity related games.

Ersin Dincelli,
Assistant Professor of Information Systems

Internships

If you're majoring in information systems, an internship is one of the best ways to explore career paths in the tech industry. In addition to learning on-the-job responsibilities, you'll also discover what types of team dynamics best fit your style of working. As an intern, you'll usually be paired with a more experienced professional who will act as your mentor, giving you guidance on the technical aspects of your project as well as helping you to manage and execute it. An internship will offer you the opportunity to see what the field is like and whether it's a good fit for you. And because information systems majors are very in demand among employers, the internship is also likely to be very well compensated.

Whether you're considering a summer internship or an internship during the school year, taking on an internship will give you the experience you need to pursue a career in the technology industry after graduation.

When do I apply for Internships?

Recruiting for internships occurs throughout the year. Apply for internships during your Junior and/or Senior year. Graduate students can apply throughout their MS Information Systems program. For additional information regarding internship opportunities, contact Business Career Connections at bcc@ucdenver.edu or Paul Worthman of the Experiential Learning Center at paul.worthman@ucdenver.edu.

What to do if your struggling with your studies

You may feel alone if you're having problems balancing (and passing!) your classes, you're definitely not. Many students struggle at one time or another in their classes. Here are some things to keep in mind:

Adopt best practices

- Experts say students should attend class, take notes and engage with the material, the faculty and their classmates.

- Read the whole syllabus. It's there you will find details on deadlines, assigned readings, extra credit opportunities and more.

- Do your homework - even if it doesn't count towards your grade!

Ask for academic help:

- Reach out to your **professors**, either in their office hours or via email. Talk to them about your struggles. Ask them what guidance they can give you.

- Reach out to your **academic adviser** at either undergrad.advising@ucdenver.edu or grad.advising@ucdenver.edu. They know about resources on campus and could help you come up with an action plan of how to better manage your course load.

- Use campus resources like the CU Denver Writing Center and the Learning Resource Center.

- If there aren't any tutors for a class you are taking, consider starting a study group with other members of your class.
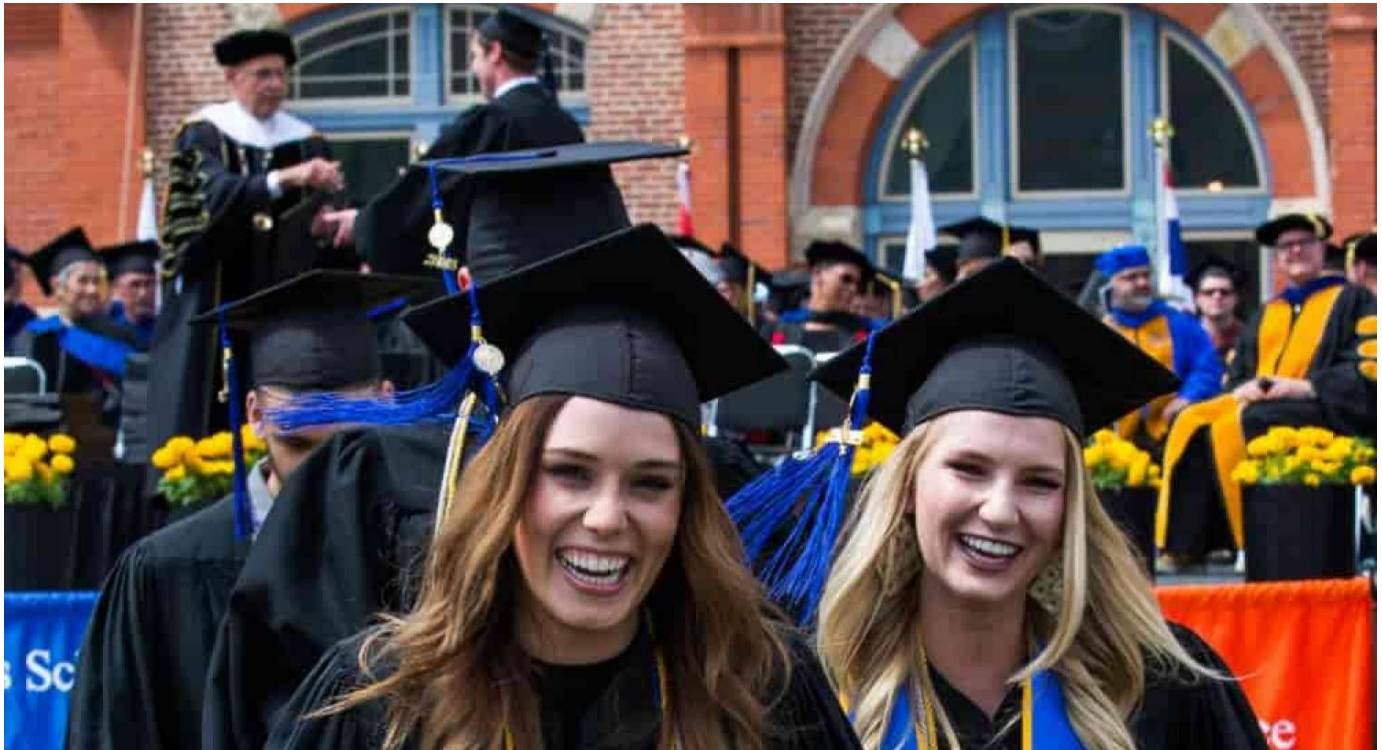
When should you seek academic help?

- The best time get academic help is as soon as you think you might have a problem.

- Don't wait until you're in too deep to get some support. If you've failed a midterm, that means you need help studying for the next one—not that you should wait and see how the next one goes.

When should you drop a class?

- If you're considering dropping a class, go talk to your academic adviser as soon as possible.

- You can talk about why you want to drop, what your alternative options are, what it means for your major, what it means for next semester, and what (if anything) it means for your financial aid.

- Additionally, there are **deadlines** by which you need to drop a class, so see your adviser as soon as you can.

Concluding Remarks and Advice

Practice professionalism. This applies not only for interactions with recruiters and Information Systems professionals, but also for faculty, staff and fellow students. Communicating professionally (e.g. no text language in emails) is essential for success and should be practiced throughout your academic career.

Regularly check your CU Denver email account for important emails from advising, BCC, the Information Systems department, etc. Provide email responses in a timely manner.

Connect with Information Systems faculty for valuable industry information, career guidance, recruiting advice and other forms of mentorship.

If you are an international student, utilize the services offered by the CU Denver Office of International Affairs. They can be reached at internationalaffairs@ucdenver.edu or ucdenver.edu/academics/internationalprograms.

Stay Informed on Industry Developments There are new trends in the information technology industry on a regular basis, so if you stand still too long you will fall behind. Students and professionals alike should keep themselves current on the latest developments in their field.

Always look for networking and recruiting opportunities. Building a professional network is essential to succeed in the Information Systems profession. Do not underestimate the importance of connecting with recruiters and professionals.

Write "thank you" notes to all interviewers, recruiters and professionals involved in the recruiting process. An email is acceptable, but a handwritten note is more impactful.

Remember, this is a challenging program and there are resources available to ensure success. Ask as many questions as it takes to find the information you need to succeed. CU Denver provides a unique opportunity to access some of the greatest businesses in Denver with its central location. All of the faculty and staff are here to assist you in tapping into all of the resources the university has and opportunities the city has to offer.

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