



OKLAHOMA CHRISTIAN UNIVERSITY



# 2025-2026 GRADUATE ACADEMIC CATALOG

Updated June 1, 2025

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## A MESSAGE FROM THE PRESIDENT

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Welcome to Oklahoma Christian University!

You have chosen to be a part of a Christian environment that is welcoming and friendly, and where we hope you will feel right at home. Lifelong friendships will be formed at OC, and you will be extremely well prepared to put your God given gifts and abilities to good use in your future career.

Long ago, I wrote my personal mission statement which states, "Be a teacher for the improvement of life according to the design and will of God." I hope you are already planning and dreaming about your future and how God can best use you for His glory. Oklahoma Christian has an outstanding faculty and staff that will provide you a first class education. They truly want you to succeed academically, and upon graduation, to go out from this very special place to be a blessing for the Lord's kingdom.

I have read lots of books in my lifetime, but I firmly believe the BEST book ever written on leadership is the Bible. In Esther 10:3, Mordecai was described as a man who, "...continued to work for the good of his people and to speak for the welfare of all their

descendants." At OC, you will find many people who care about you as an individual and work for your good and speak up for your welfare. We want you to soar academically and grow spiritually!

Thank you for choosing OC! We want your time here to be a blessing to you, your family and the Kingdom of God. We look forward to seeing how God transforms your life through OC, and no matter where your life's journey takes you, we hope you will always feel at home at OC.

God bless you,  
L. Ken Jones, Ph.D.  
President

## A MESSAGE FROM THE PROVOST

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Welcome to Oklahoma Christian University! Whether you are returning to campus, attending college for the first time, transferring from another university, or beginning your pursuit of graduate studies, we are delighted that you have chosen to join us for an exciting academic journey. We hope that journey will change your life in positive and profound ways, and in two primary senses.

First and foremost, OC is a university, and here you will find a vibrant community of scholars and students who find excitement in the process of discovering and sharing knowledge. With the increased rate of technological change and the advent of generative artificial intelligence, facing the challenges of our times requires a well-trained and agile mind. You will find here at OC a place where you learn the facts and tools of your selected discipline. More importantly, you will learn how to learn, so that you can continue to adapt and thrive in a dynamic world.

You will also find at Oklahoma Christian University a place that is proud of its middle name. We take our faith in Christ seriously and want it to shape everything we do. Here, you will be treated with respect, as one who is created in the image of God, and worthy of our best efforts to help you become everything God intends for you to be. Our hope is that you will see faith displayed here in winsome ways as you decide what you believe about God and his will for your life, and how you will put your beliefs into practice.

Prepare for a challenging and joyful experience here at Oklahoma Christian University. We are glad you are with us.

Brian Starr, Ph.D.  
Provost



## BOARD OF TRUSTEES

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**Mark A. Brewer, Ph.D.**

Chair  
Arcadia, Oklahoma

**David Duncan, D.Min.**

Vice Chair  
Katy, Texas

**Jeff Bonney, C.P.A.**

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Oklahoma City, Oklahoma

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Tulsa, Oklahoma

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**Michelle Eggleston, J.D.**

Amarillo, Texas

**Danny Floyd**

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**Wes Gotcher**

Midland, Texas

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**Dewey Leggett**

Fairview, Texas

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Broken Arrow, Oklahoma

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Oklahoma City, Oklahoma

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Seminole, Oklahoma

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Edmond, Oklahoma

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Humble, Texas

**Michelle Stephens, J.D.**

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**Michael Walker, Ed.D., J.D.**

Kennedale, Texas

**Greg Wedel**

Edmond, Oklahoma

**Brute Wolf, M.D.**

Broken Arro, Oklahoma

**William Zucker**

Mannford, Oklahoma

## LIFE TRUSTEES

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**Karl H. Berg**

Wichita, Kansas

**Daryl J. Bond**

Yukon, Oklahoma

**Ken Davidson**

Yukon, Oklahoma

**James L. Ketcherside**

McPherson, Kansas

**Millie Prince Roberson**

Norman, Oklahoma

**Jack Rowe**

Edmond, Oklahoma

**Mark A. Stansberry**

Edmond, Oklahoma

**Thomas J. Trimble, J.D.**

Scottsdale, Arizona

**Wayne L. Warren**

Broken Bow, Oklahoma

## OFFICERS

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**Ken Jones (2021)**

President  
B.S., Oklahoma State University  
M.S., Oklahoma State University  
Ph.D., Oklahoma State University

**John deSteiguer (2002)**

Chancellor  
B.A., Northeastern State University  
J.D., Pepperdine University

**Stephen Eck (2000)**

Chief Legal Officer  
A.A., York College  
B.A., Oklahoma Christian University  
M.B.A., Mid-America Nazarene University  
J.D., Oklahoma City University

**Brian Starr (2023)**

Provost  
Assistant Professor of Finance  
B.S., Abilene Christian University  
M.B.A., University of Texas at Austin  
M.A., Abilene Christian University  
Ph.D., Texas Tech University

**John Hermes (1993)**

Chief Information and Campus Operations Officer  
B.S., Oklahoma Christian University  
M.S., Oklahoma State University

**Christine Merideth (2000)**

Chief Advancement Officer  
B.S., Oklahoma Christian University

**Neil Arter (1990)**

Chief Student Life Officer  
Dean of Students  
B.S., Oklahoma Christian University  
M.B.A., Oklahoma Christian University

**Jennifer Ray, C.P.A. (2016)**

Chief Financial Officer  
B.B.A., Oklahoma Christian University

**Shawn Hamil (2023)**

Chief Human Resources Officer  
B.S., Southeastern State University  
M.S., Texas A&M University – Commerce  
D.B.A., Saint Leo University

# FACULTY

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**Andrea Ashley (2023)**

Assistant Professor of Electrical Engineering  
B.S., Kettering University  
M.S., University of Colorado  
Ph.D., University of Colorado

**Jeffrey Bigelow (1994)**

Chair, Electrical and Computer Engineering  
Professor of Electrical and Computer Engineering  
B.S., Colorado State University  
M.S., University of Illinois at Urbana  
Ph.D., University of Illinois at Urbana

**Jennifer Bryan (2003)**

Chair, Mathematics  
Professor Mathematics  
B.S., Oklahoma Christian University  
M.S., Oklahoma State University  
Ph.D., Oklahoma State University

**Allison Cassady (2011)**

Chair, School of Education  
Professor of Education  
B.S., Texas A&M University  
M.Ed., Texas A&M University  
Ph.D., University of Texas

**Joanie Chambers (2014)**

Associate Professor of Education  
B.S.E., Oklahoma Christian University  
M.S.Ed., University of Central Oklahoma  
Ph.D., University of Oklahoma

**Curtis Coleman (2018)**

Associate Professor of Computer Science  
B.S., California State University  
M.S., Norwich University  
Ph.D. Candidate, Liberty University

**Jessica Colls (2024)**

Associate Professor of Marriage and Family Therapy  
B.A., Central Baptist College  
M.A., Oklahoma Baptist University  
Ph.D., University of Louisiana Monroe

**Colin Doyle (2022)**

Assistant Professor of Electrical and Computer Engineering  
B.S.E.E., Oklahoma State University  
M.S.E.E., University of Oklahoma  
Ph.D., Southern Methodist University

**Bill Goad (1979)**

Professor of Business  
B.S., Oklahoma Christian University  
M.B.A., Abilene Christian University  
Ed.D., Oklahoma State University

**Daniel Griffin (2022)**

Instructor of Computer Science  
B.S.C.E., Oklahoma Christian University  
M.S.C.S., Oklahoma Christian University

**Paul Howard (2002)**

Professor of  
Mathematics B.S.,  
University of Idaho M.S.,  
University of Idaho  
Ph.D., University of Oklahoma

**Julie Kellogg (2023)**

Assistant Professor of Marriage and Family Therapy  
B.S., Oklahoma State University  
M.S., Oklahoma State University  
Ph.D., Swansea University

**Bobby Kern (2012)**

Professor of Psychology and Family Science  
Chair, Psychology and Family Science  
B.S., Oklahoma Christian University  
M.A., Oklahoma Christian University  
Ph.D., Oklahoma State University

**Fang Li (2022)**

Assistant Professor of Computer Science  
B.A., Henan University  
M.S., University of Central Oklahoma  
Ph.D. Candidate, University of Texas at Dallas

**Steven P. Maher (2002)**

Associate Professor of Electrical and Computer Engineering  
B.S.E.E., University of Kansas  
M.S.E.E., University of Kansas

**Wes McKinzie (2017)**

Assistant Professor of Business  
B.S., Oklahoma Christian University  
M.A., University of Oklahoma

**Kimberly Merritt (2007)**

Professor of Business  
B.S., Oklahoma State University  
M.B.A., Cameron University  
D.B.A., Argosy University

**Gail Nash (1998)**

Professor of English  
B.A., Oklahoma Christian University  
M.A., Oklahoma State University  
Ph.D., Oklahoma State University  
2013 Gaylor Chair of Distinguished Teaching

**Byron Newberry (2001)**

Associate Provost  
Dean, College of Engineering and Computer Science  
Chair, Graduate School of Engineering  
Professor of Mechanical Engineering  
B.S.M.E., Oklahoma Christian University  
M.S.M.E., University of Michigan  
Ph.D., University of Michigan

**Ryan Newell (1992)**

Professor of Psychology  
A.A., Ohio Valley College  
B.S., Oklahoma Christian University  
M.Ed., University of Central Oklahoma  
Ph.D., University of Toledo

**Robert Nix (2015)**

Associate Professor of Computer Science  
B.S., Oklahoma Christian University  
M.S., The University of Texas at Dallas  
Ph.D., The University of Texas at Dallas

**David North (2015)**

Chair, Computer Science  
Associate Professor of Computer Science  
B.S., Oklahoma Christian University  
M.S., University of Oklahoma

**Jennifer Patterson (2023)**

B.S., Oklahoma State University  
M.S., Oklahoma State University

**Kevin Plumlee (2012)**

Chair, Mechanical Engineering  
Associate Professor of Mechanical Engineering  
B.S., Oklahoma Christian University  
M.S., Texas A&M University  
Ph.D., Texas A&M University

**Jillian Poyzer-Johnson (2020)**

Assistant Professor of Accounting  
B.B.A., Oklahoma Christian University  
M.Acc., University of Nebraska, Omaha

**Kerianne Roper (2004)**

Professor of Business  
B.S., Oklahoma Christian University  
M.B.A., University of Oklahoma  
D.B.A., Anderson University  
2020 Gaylor Chair of Distinguished Teacher

**Jeffery Simmons (2008)**

Dean, College of Business  
Chair, Graduate School of Business  
Professor of Business  
B.S., Oklahoma Christian University  
M.I.M., Thunderbird School of Global Management  
D.B.A., Nova Southeastern University

**Burton Smith (2003)**

Professor of Marketing  
B.S., Oklahoma State University  
M.S., Oklahoma State University  
Ed.D., Oklahoma State University  
2009 Gaylor Chair of Distinguished Teaching

**Pat Smith (2006)**

Associate Professor of Computer Science  
B.S., University of Oklahoma  
M.S., Colorado State University  
2017 Gaylor Chair of Distinguished Teaching

**Brent Sykes (2025)**

Dean, College of Sciences and Education  
Professor of Education  
B.A., University of Central Oklahoma  
M.Ed., University of Oklahoma  
Ph.D., University of Oklahoma

**David Waldo (1996)**

Professor of Electrical and Computer Engineering  
B.S., Texas A&M University  
Ph.D., Drexel University

## OC AT A GLANCE

Oklahoma Christian University (OC) is a higher learning community that educates, mentors and inspires learners to fulfill their God-given potential. OC is a comprehensive institution of serious academic inquiry grounded deeply in the liberal arts and the Christian faith, while also providing excellent professional, pre-professional, and graduate programs. OC is affiliated with the churches of Christ, but students of all faiths are most welcome. The University enrolls approximately 475 graduate students.

### GRADUATE DEGREES

OC offers the following graduate degrees:

Master of Accountancy (M.Acc.)  
Master of Arts in Teaching and Learning (M.A.T.L.)  
Master of Business Administration (M.B.A.)  
Master of Education (M.Ed.)  
Master of Science in Computer Science (M.S.C.S.)  
Master of Science in Engineering (M.S.E.)  
Master of Science in Human Science (M.S.H.S.)  
Master of Science in Project Management (M.S.P.M.)

### ACCREDITATION

Oklahoma Christian is accredited by the Higher Learning Commission.  
230 South LaSalle Street, Ste. 7-500  
Chicago, Illinois 60604-1413  
Phone: 800-621-7440 | 312-263-0456 | Fax: 312-263-7462  
[www.hlcommission.org](http://www.hlcommission.org) | [info@hlcommission.org](mailto:info@hlcommission.org)

### Additional Accreditations

The graduate business programs are accredited by the Accreditation Council for Business Schools and Programs (ACBSP).  
11520 WEst 119th Street  
Overland Park, KS 66213  
Phone: 913-339-9356 | Fax: 913-339-6226  
[www.acbsp.org](http://www.acbsp.org) | [info@acbsp.org](mailto:info@acbsp.org)

### EQUAL OPPORTUNITY STATEMENT

In compliance with Title VI and Title VII of the Civil Rights Act of 1964, Executive Order 246 as amended, Title IX of The Educational Amendments of 1972, Sections 503 and 504 of The Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, the Family and Medical Leave Act of 1993, the Civil Rights Act of 1999, and other Federal Laws and Regulations, Oklahoma Christian University does not discriminate on the basis of race, color, national origin, sex, age, handicap, disability, or status as a veteran in any of its policies, practices, or procedures; this includes but is not limited to admissions, employment, financial aid, and educational services. The designated Title IX Coordinator is Ms. Tamie Willis, at (405) 425-6463, 2501 E. Memorial Road, Edmond, Oklahoma 73013.

This catalog contains official announcements of courses for the 2024-2025 academic year. OC reserves the right to repeal, change, or amend the rules, regulations, and provisions contained in this catalog and may withdraw or modify the programs and courses described. OC reserves the right to change fees, modify services, or change its program should economic conditions, national emergency, or other force majeure make it necessary to do so. Fees, tuition, programs, courses, course content, instructors, and university policies and regulations are subject to change without notice.

### MISSION STATEMENT

Oklahoma Christian University educates, mentors and inspires learners to fulfill their God-given potential.

### STANDARDS

At OC, graduate programs require a higher caliber of student work that is characterized by:

1. Advanced mastery of the discipline's knowledge, methodology, and skills,
2. A deep understanding and application of the theory of the discipline,
3. Independent thinking and work,
4. Integration or advancement of the current literature or state of the art of the discipline through theoretical or professional research, and
5. Effective communication in the discipline.

### CONVERGE UNIVERSITY LEARNING OUTCOMES

As a Christian community of learning, we seek the following graduate program University Outcomes:

#### Active Faith

Graduates of OC's graduate programs demonstrate an understanding of the ethical standards of a Christian worldview and the ability to apply those standards.

#### Mastery of Knowledge

Graduates of OC's graduate programs demonstrate:

1. Advanced mastery of the discipline's knowledge, methodology, and skills
2. A deep understanding and application of the theory of the discipline.

#### Information Skills

Graduates of OC's graduate programs demonstrate the ability to do theoretical and/or professional research that integrates the current literature and/or state of the art of the discipline.

#### Structured Reasoning

Graduates of OC's graduate programs are able to apply the theory and knowledge of the discipline in structured ways to solve real-life situations or problems.

#### Critical and Creative Thinking

Graduates of OC's graduate programs are able to advance the state of the discipline by creating and/or applying solutions in a variety of situations after a comprehensive and critical exploration of options, issues, ideas, publications, artifacts, and events.

#### Effective Communication

Graduates of OC's graduate programs are able to communicate at high levels of effectiveness and professionalism using the oral, written, graphical, and interpersonal means appropriate to their discipline.

#### Personal, Social, and Global Stewardship

Graduates of OC's graduate programs are able to:

1. Demonstrate self-initiative and assume personal responsibility for their work and results,
2. Use their professional knowledge and skills to make a positive impact on their profession and the world, and
3. Demonstrate compassion and respect for all worldviews and cultures.

### SPIRITUAL LIFE

One of the greatest benefits of attending OC is the opportunity for spiritual growth and connection. This comes from lifelong Christian friendships, along with all of our faculty and staff being followers of Jesus Christ too.

### Chapel

The campus meets Monday and Tuesday at 11:00 am for chapel in Baugh Auditorium. Other small chapels meet Wednesday, Thursday and Friday.

## Devotionals

There are many other voluntary devotionals and Bible studies around campus during the week. This includes a university-wide devotional every Monday evening at 10:00 pm in Scott Chapel. These times provide inspirational worship and a deep sense of community.

## Local Churches

Churches throughout the Oklahoma City area will welcome you to worship and service with them. Many nearby congregations have campus ministries that are tailored to help our OC students find their places in a local church. Several of these churches also offer college adoption programs to help students connect with local families.

## Missions

At some point during their time at OC, many of our students engage in mission efforts. Groups begin forming early in the academic year to plan for their trips, learn the culture, customs and language of the places they plan to visit during the coming year. Groups have gone to American Samoa, Australia, Austria, Belgium, Brazil, Canada, China, Croatia, England, France, Germany, Ghana, Greece, Guatemala, Haiti, Honduras, Ireland, Japan, the Kingdom of Eswatini, Malawi, Malaysia, New Zealand, Nicaragua, Panama, Peru, Rwanda, Scotland, Spain, Tanzania, Thailand, Uganda, Ukraine, and Vanuatu, as well as parts of the United States.

## OKLAHOMA CITY

Oklahoma City offers jobs, entertainment, cultural events, and restaurants typical of a major city. The Oklahoma City Zoo, Oklahoma City Philharmonic Orchestra, the Oklahoma City Thunder NBA franchise, Will Rogers World Airport, movies, shopping centers, live theater, the Civic Center Music Hall, the National Cowboy and Western Heritage Museum, Bricktown, the Bricktown Ballpark, Chesapeake Arena, the Cox Convention Center, and the state capitol are all in the metropolitan area, which has a population of approximately one million people.

## LIBRARY

The Tom and Ada Beam Library provides access to information to support and enhance the University's educational programs. It is centrally located on campus in the Mabee Learning Center. The library houses more than 100,000 volumes, almost 30,000 e-books, and more than 8,000 periodical subscriptions in paper, microform, or electronic format. The collection also includes videotapes, cassette tapes, and other forms of media.

Because electronic information is vital to our country's information infrastructure, the library offers a growing selection of electronic resources, including an online catalog, online databases, and CDs/DVDs. Because the online catalog and databases are linked from the library's website, you have access to online research from anywhere. The library is committed to expanding its access to electronic resources as well as the more traditional services. The library faculty works with academic departments to complement specific courses. Individual reference assistance is provided at the library and also by email or phone.

## OTHER

### Facilities

The contemporary buildings on the Oklahoma City campus include classroom buildings, residence halls and apartments, a dining hall, student center, auditorium, performing arts theater, library, field house, and athletic fields.

### Recreation

Facilities for student recreation include: the Eagles' Nest, which contains basketball/volleyball courts, a 4,000-square-foot fitness center, and a 25-meter, six-lane swimming pool; the Gaylord University Center, which includes ping-pong and pool tables; and the Eagle Trail, a 3.1-mile running and walking trail around the campus.

## Bookstore

The campus bookstore in the Gaylord University Center sells textbooks, academic supplies, toiletries, gifts, greeting cards, OC clothing, and other merchandise.

## Mail Service

The campus mail service is located in the Heritage Plaza.

## Campus Police

Campus Police provides security for students, faculty, and staff on the OC campus. They can be reached at (405) 425-5500.

## Calling and Career Services

The OC Calling and Career Office offers students assistance in exploring career options and in finding part-time and full-time employment. The Calling and Career Office also offers free career assessment software, resume writing assistance, interview preparation, on-campus interviews, career fairs, workshops, and much more. For more information, call (405) 425-5960 or visit [www.oc.edu/careerservices](http://www.oc.edu/careerservices).

## FINANCIAL SERVICES

For more information about OC's financial policies and procedures, please visit <https://www.oc.edu/admissions/financial-services/financial-policies>

## 2024-2025 ATTENDANCE COSTS

### TUITION, per credit hour

Business (MBA/MAcc)	\$ 595.00
Education (MEd)	\$ 425.00
Engineering & Computer Science (MSE/MSCS)	\$ 605.00
Human Sciences (MSHS)	\$ 595.00
Project Management (MSPM)	\$ 605.00

### FEES

Business Lab/Software Fee, per course	\$ 150.00
Club Athletic Fee, per semester	\$ 300.00
Finance Lab/Software Fee, per course	\$ 45.00
International Administrative Fee, per hour (International Students Only - In Country Only (F1-Visa))	\$ 25.00
Math/Computer Science Lab Fee, per course	\$ 100.00
MFT Practicum Fee, per course	\$ 75.00
NCAA Athletic Fee, per semester	\$ 150.00
Science & Engineering Labs, per course	\$ 200.00
Graduation Fee	\$ 100.00
Health Insurance, Annual 8/1/25-7/31/26	\$1,720.00

*\*\*Required of all international students who have not given proof of insurance on their myOC account by 09/15/25 (Fall term) and by 01/31/26 (Spring term).*

### PAYMENT

#### Student Account and Agreement Form

Payment of expenses may be arranged under one (or a combination) of four account payment options. Full payment is due the first day of the semester, each term unless other payment arrangements have been made.

#### Plan 1 - Cash at Enrollment

This is the best form of payment because it eliminates all service charges. Checks should be made payable to OC. The University also accepts four major credit cards (American Express, Discover, MasterCard, and Visa), which can be used to pay any part of the total student charges. Those who pay with a credit card will be charged a 2.95% convenience fee.

## Plan 2 - Installment Payment Plan

This monthly payment plan is available through the student's online account at <http://my.oc.edu>. The first payment is due upon enrollment in the payment plan. There is a \$25 enrollment fee per semester. No finance charges are assessed to the student's account as long as the contract payments are made on time each month. Students can access their student account by clicking on "Student Account Online" located on myOC under QuickLinks.

## Plan 3 – Alternative Student Loans

There are a variety of student loans available to students through private lenders. Information can be obtained in the Student Financial Services office or at [www.oc.edu/loans](http://www.oc.edu/loans).

## Plan 4 – Graduate PLUS Loans

PLUS loans can be obtained by applying at [www.studentloans.gov](http://www.studentloans.gov). These loans require a credit check. They are available only after a FAFSA is completed and federal unsubsidized loans have been awarded.

## WITHDRAW/REFUND POLICY

### Withdraw Policy

Students must initiate a Withdrawal Form on myOC/Services or go by the Office of the Registrar to officially withdraw from the university. The signed and completed form will indicate the official withdrawal date for the student as determined by the Registrar, based upon the last date of attendance for the term. A link to the Registrar Office withdrawal process is here.

Students are not withdrawn from classes for non-attendance online or in person. Lack of interest or participation in the education process does not replace an actual withdrawal; and students will be responsible for the cost of the course.

### Refund Policy

OC graduate programs use a variety of class length formats, each with its own withdraw/drop refund policy.

Tuition refunds are made to students who officially withdraw from courses that are 11-weeks to 15-weeks in length or from the university before the fourth week of a semester. Refunds are given as follows:

- If the withdrawal date is in the FIRST WEEK (7 days), a 100% refund will be made.
- If the withdrawal date is in the SECOND WEEK, a 75% refund will be made.
- If the withdrawal date is in the THIRD WEEK, a 50% refund will be made.
- After the third week, no refunds will be made.

Tuition refunds are made to students who officially withdraw from courses that are 7-weeks to 10 weeks in length by the second week of class. Refunds are given as follows:

- If the withdrawal date is within the FIRST WEEK (7 days), a 100% refund will be made.
- If the withdrawal date is within the SECOND WEEK, a 50% refund will be made.
- After the second week, no refunds will be made.

Tuition refunds are made to students who officially withdraw from courses that are 1-week to 6-weeks in length (including Winter term courses) by the second day of class. Refunds are given as follows:

- If the withdrawal date is on the FIRST DAY, a 100% refund.
- If the withdrawal date is on the SECOND DAY, a 50% refund will be made.
- After the second day, no refunds will be made.

## Adding/Dropping a Class

To add or drop a class, a student should see the academic advisor who will approve the class electronically or may sign a Change in Enrollment Form and forward that form to [registrar@oc.edu](mailto:registrar@oc.edu).

If the student drops a course and adds another course at a later time during the 100% refund period, it may result in additional charges. Students should always add and drop a course during the same session to avoid these charges.

Any student dismissed for unsatisfactory conduct or failure to pay charges as agreed is not eligible for refunds.

In accordance with federal regulations, OC is required to calculate the "return of Title IV funds" formula for students who are attending on federal (Title IV) financial aid. For this reason, withdrawing from classes may reduce a student's financial aid for the current semester. In accordance with the Satisfactory Academic Progress policy, withdrawing may jeopardize future Title IV funding.

## FINANCIAL AID AND SCHOLARSHIPS

Graduate students who complete the Free Application for Federal Student Aid (FAFSA) may receive federal funds for loans, but not for grants. The FAFSA determines eligibility for aid. The application form is available at [www.fafsa.gov](http://www.fafsa.gov). For additional information, contact the Student Financial Services Office at 405-425-5190. Work opportunities are readily available in the Oklahoma City area and a large number of OC graduate students work in area businesses. As a private university, OC does not charge out-of-state tuition.

## Veterans Programs

OC is in compliance with PL 115-407 Veterans Benefits and Transition Act of 2018 Section 103 and will not have any policy inconsistent with 38 U.S. Code § 3679 (e).

## ADMISSION POLICIES

OC recognizes that students enter graduate studies for a variety of reasons - some to pursue a degree program, others to continue their education, and still others for personal development. These and other needs can be addressed at OC for those students who are adequately prepared for graduate work. The admission and retention standards assure that those admitted to graduate studies have adequate preparation, maturity, and ability to succeed in their studies.

Four types of admission are granted to OC's graduate programs:

1. Admission to a degree program
2. Provisional or probationary admission
3. Special (non-degree seeking) admission
4. Admission to audit a course

## INTERNATIONAL STUDENTS

OC welcomes students from all over the world to make OC their educational home. International students are welcome to apply to OC's graduate programs.

To be considered for admission, an international student must complete the following steps:

- Submit a completed application for admission to the academic program of choice.
- See individual program admission requirements for additional requirements.
- Submit OC's Financial Worksheet and OC's Statement of Understanding.
- Submit financial documentation as required by the Department of Homeland Security and as shown on the OC Financial Worksheet for your graduate program.

- Submit an official copy of transcripts for all degrees received with a certified course by course evaluation in English from a credential evaluation service that is a member of NACES or AICE (e.g. World Education Services [WES] or Educational Credential Evaluators [ECE]). Evaluations from other credential evaluation services will only be accepted if approved by the faculty chair of the graduate program. The chair may accept transcripts in English without a certified evaluation from countries or universities with whom OC has an established relationship.
- Submit a copy of the student's passport photo page and all U.S. Immigration documents received.
- After receiving an admission letter, students who are transferring their SEVIS Record to OC must ask their current U.S. university to complete and send OC's SEVIS Transfer Form and transfer their SEVIS Record to OC in order to be issued an OC I-20.

Graduate applicants whose primary language is not English or who have not completed a degree from a university where the primary instruction is in English must demonstrate competency in English in one of the following ways:

Standardized Testing:

1. TOEFL: 79 IBT or higher; 61 IBT or higher for MSE and MSCS
2. IELTS: 6.5 or higher; 6.0 or higher for MSE and MSCS
3. PTE: 59 or higher; 52 or higher for MSE and MSCS
4. Duolingo: 120 or higher; 105 or higher for MSE and MSCS
5. Other English language proficiency test scores will only be accepted upon approval by the chair of the graduate school or program. If a different English language proficiency test score is accepted, the score must be equivalent to those required for the tests listed above.

For more details about demonstrating English competency for admission into OC's graduate programs, students should consult with their advisor.

## **ACADEMIC POLICIES**

### **ACADEMIC LOAD**

Students generally may not enroll in more than 12 graduate hours per regular semester. A combined load of undergraduate and graduate credit hours shall not exceed 15 hours.

A full-time student is defined as one who is enrolled in nine or more graduate hours in a regular semester.

### **ENROLLMENT OF UNDERGRADUATES**

An undergraduate student who is within 12 hours of graduation and who has at least a cumulative 3.0 GPA may request permission to enroll in one graduate course. Graduate credit taken under this provision may not count to meet undergraduate degree requirements. Undergraduate engineering students who are within the last year of their baccalaureate degree, and who have not been admitted to a graduate program, and who have at least a cumulative 3.0 GPA, may request their division or program chair's permission to enroll in graduate engineering courses. Note: This policy does not apply to students admitted to an undergraduate/graduate dual degree program.

### **RETENTION**

Graduate students must maintain a major GPA of 3.0 to remain in good standing academically. A major GPA is made up of all coursework and grades counting toward their graduate degree requirements. Students with a major GPA below 3.0 upon completing all degree requirements will not be allowed to graduate until their major GPA is at or above 3.0.

The first time a student's semester GPA falls below a 3.0, they will be placed on probation.

The second time a student's semester GPA is below a 3.0, they will be suspended from the graduate program unless the student has a 3.0 or higher cumulative GPA, in which case they will be allowed to continue on probation.

The third time a student's semester GPA falls below a 3.0, they will be suspended from the graduate program regardless of their cumulative GPA.

### **TIME LIMIT FOR DEGREE**

All work credited toward either the M.Acc. M.A.T.L., M.B.A., M.Ed., M.S.C.S., M.S.E., M.S.H.S., or the M.S.P.M. degrees must be completed within seven years from the date of entry (first course at OC).

### **LEAVE OF ABSENCE**

Graduate students (including VA students who must leave OC to complete service requirements or because they are called to active duty) may request a leave of absence during fall, spring, and/or summer semesters. A Leave of Absence Request Form must be completed and submitted to the appropriate chair before the semester in which the leave is taken. (The exception to this timing is for VA students, who should submit the Leave of Absence Request Form to the Registrar as soon as they realize that a leave of absence is necessary.) If, at the end of the leave of absence period, the student does not return, the student's participation in the program will be terminated. Application for readmission will be required if the student wishes to return. Time spent in a leave of absence does not count toward the time limit for degree.

### **FINAL EXAMS**

Generally, students may not reschedule final exams due to heavy testing in a single day. A student may request that their final examination in a class be rescheduled only where the student has more than three examinations scheduled for a single day. If a student wishes to reschedule a final exam, they must receive permission from the college dean. Final examinations will not be given early unless approved by the Senior Academic Leadership Team upon a showing of extraordinary circumstances. Examples of extraordinary circumstances are non-elective surgery or being called to active duty.

### **PROCTORED EXAMS**

For all faculty who use or may use proctored exams in their courses regardless of delivery mode (face-to-face or online), the Federal Government and HLC requires that students be notified of the potential cost they may incur if the exam is proctored. If a course in an exam must be proctored, you must have your proctor identified and all proper forms turned in by the second week of class.

### **Choosing A Proctor**

Some tests may require a proctor. Limited proctored testing may be available through OC's testing center. Please contact studentsuccess@oc.edu.. Some proctoring services may require a testing fee. Any testing fees will be the responsibility of the student. Proctoring options could include:

- Testing facility at a University or Community College campus (e.g., UCO Testing Center)
- Sylvan Learning Center (or equivalent)
- Federal Government Agency

### **Who Cannot Be a Proctor**

- Relative or spouse
- Co-worker, business associate, or supervisor
- Friend or peer
- Coach
- Another Oklahoma Christian University student

## Exam Proctoring Expectations

- Proctors who do not fit the list of appropriate proctors will be refused.
- Proctors may expect payment for this service. Any costs involved are the student's responsibility. Discuss the number of exams and length of each with your proctor, as it requires a time commitment.
- Verify your proctor will be available for all of your exams. Your proctor must agree to return exams in a timely manner.

## After Finding a Proctor

- Have your proctor complete the Examination Proctor Agreement form.
- Submit your proctor form by the end of the second week of class.
- Confirmation will be sent to you and your proctor upon approval.

## GRADING SYSTEM

Grades are recorded for graduate courses in recognition of certain levels of achievement and are interpreted as follows:

- A: Excellent level of achievement (4 grade points/semester hour)
- B: Average level of achievement (3 grade points/semester hour)
- C: Below average level of achievement (2 grade points/semester hour)
- F: Failure (0 grade points/semester hour)
- I: Incomplete (0 grade points/semester hour)
- W: See drop schedule for withdrawal dates (0 grade points; does not count against grade point average)

Note: Graduate programs at OC do not issue "D" grades.

Other Grades which may be awarded:

- P: "Passing" grade in a course that does not give a lettergrade.
- P\*: "Passing" grade awarded for credit by exam.

## Incompletes

A grade of Incomplete (I) will be assigned when a student has not met the requirements of the course due to illness, an emergency, or some cause deemed reasonable by the instructor. Negligence of class requirements is not considered an acceptable reason for an Incomplete to be granted.

An incomplete grade is removed by completion of the course requirements within the time allowed by the instructor, not to exceed six weeks. The professor has an option to grant an extension if warranted based on a request by the student within the first six weeks. If a grade has not been submitted by the professor at the end of 12 weeks, the Registrar's Office will convert the "I" grade to an "F" grade.

## REPEATING COURSES

A student should consult with their academic advisor before repeating a course in which they have a low or failing grade. The purpose of this consultation is to examine the cause(s) and to discern specific steps necessary to succeed in the repeat. When a course is repeated, the higher grade will be used in the computation of the GPA. This replacement course/grade must be taken at OC.

## POLICY ON ACADEMIC HONESTY

### Cheating

Cheating on an examination, assignments, roll sheet, or any other course related work or activities undermines the ethics of the academy and the specific Christian purposes of OC. Accordingly, students who cheat on examinations, assignments, or other course related work or activities will face serious consequences, as outlined in this policy.

### Plagiarism

One particular form of cheating is plagiarism. Plagiarism is the transmitting of another's ideas, words, or materials as one's own and/or the failure to accurately credit the ideas, words, or materials of another. Plagiarism also includes passing off the work of another (a friend, a parent, a website) as one's own. Plagiarism undermines the ethics of the academy and the specific Christian purposes of OC.

Accordingly, students who engage in plagiarism in assignments submitted will face serious consequences, as outlined in the following policy.

## PENALTIES FOR ACADEMIC DISHONESTY

On the first offense, the student will receive a "0" (zero) credit for the examination or assignment. For forms of cheating or dishonesty other than on examinations or assignments, the professor shall have the discretion to impose an appropriate penalty. Professors must send documentation of the first offense to the appropriate chair, the dean of the appropriate college, the Provost, and the Dean of Students.

On the second offense in the same course, the student will receive an "F" in the course. Professors must send documentation of the second offense to the appropriate chair, the dean of the appropriate college, the Provost, and the Dean of Students.

At either the first or second offense, the student may appeal using the process set forth for grade appeals. If a student commits offenses in two or more courses, the Academic Appeals Committee may assign penalties for academic dishonesty in addition to the penalties assigned by the professors in the courses. The Committee may assign penalties up to and including suspension from the University.

Professors should maintain the highest standards of academic honesty both in and out of the classroom. Professors must apply the rules regarding cheating and plagiarism and report to the appropriate channel.

## STUDENT COMPLAINT SYSTEM AT OC

To improve the ease and accessibility of reporting student complaints, OC developed an online student complaint system that was deployed in the Fall 2016 semester. The new student complaint system, accessible through the campus intranet, provides a single online portal for all types of student complaints. Students select one of four complaint categories (Title IX, Academic Appeals, Student Life, and Campus Police), and then complete the online form related to that category. Once completed and submitted, the form is automatically routed to the appropriate university employee (e.g., the Title IX Coordinator, FERPA officer, Dean of Students, or Campus Police department), who has a specified period of time to respond. Upon clicking the "submit" button, students receive an automated email confirming the submission and providing information about the expected response time. The responsible employee also receives an email notifying him or her of the complaint and reminder emails if the complaint is not resolved within the specified timeframe. All responses to the complaint and the complaint resolution are documented in the system, which provides a log of all complaints submitted as well as information about the response time for various areas.

## GRADE APPEALS

Any student may appeal a final grade received in a course. To assure due process and protect the rights of both the student and the professor, the appeals procedure below must be followed. Except by this process, no student-appealed grade may be changed, and no student-contested academic action by a professor may be reversed.

### Step 1 - Contact the Professor

A student who disagrees with a professor on a course grade or other grade-related issue must contact the professor in writing to explain the concern or complaint. If the student does not bring the matter to the professor's attention within four weeks of the final grade report, the student loses the right of appeal. The professor has two weeks to respond in writing to the student's appeal.

### Step 2 - Appeal to the Chair

If the interaction with the professor does not resolve the issue, the student has two weeks from that response to submit an appeal through the online Student Complaints system (available through myOC) to the chair of the professor's school or department. Otherwise the student loses the right of appeal and the issue is considered closed. If the professor is the chair, the student will take the appeal to the dean.

1. The appeal must include a written description of the circumstances as understood by the student. The chair will request any supporting documentation from the professor. The chair will discuss the complaint with the professor and, where appropriate, with other students. The chair will make a decision as soon as is reasonably practicable, but in no event longer than four weeks from the date of receipt of the appeal, and will communicate that decision in writing to the student.
2. After receiving the appeal, the chair has two options: the chair may make the decision and explain it to the student and the professor within two weeks or, if the chair considers the matter sufficiently serious or complex, the chair may take the matter to the dean of the professor's college for further review and response.

### Step 3 - Appeal to the Dean

If the chair makes the decision, and if the student or professor is not satisfied that the chair's decision is fair and just, either may appeal to the dean of the professor's college by submitting information through the online Student Complaints system within one week of the decision by the chair.

Upon receiving notice of the appeal, the dean will request from the chair any documents submitted by the professor that are not available through the Student Complaints system and the chair's rationale for the decision. The dean will discuss the matter with all those involved.

After receiving the appeal, the dean has two options: the dean may make the decision and present it in writing to the student, the professor, and the chair within four weeks, or, if the dean considers the matter sufficiently serious or complex, the dean may take the matter to the Academic Appeals Committee.

### Step 4 - Appeal to the Academic Appeals Committee

If the dean makes the decision, and if the student or professor is not satisfied that the dean's decision is fair and just, either may initiate an appeal to the Academic Appeals Committee by submitting information through the Student Complaints system within one week of the dean's decision. The dean will present any documents submitted by the professor or gathered in evidence prior to the dean's decision that are not available through the Student Complaints system.

The Academic Appeals Committee will discuss the matter with the students and professor individually. The Academic Appeals Committee will decide the matter as soon as is reasonably practicable, but in no event longer than four weeks after the matter is submitted to it. After review, the decision of the Academic Appeals Committee is final and must be reported in writing within a week of the decision to all involved parties and to the Provost.

The time periods noted above may, in each instance, be extended due to extenuating circumstances or when the time period runs during school holiday periods, such as Christmas or summer break.

All academic appeals processes in programs or departments need to be clear that program-level appeals precede the institutional Academic Appeals Committee in order to be in compliance with the Department of Education and HLC standards, as well as appropriate legal practices. The Academic Appeals Committee appeal decisions supersede the program decisions.

### FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

The Family Educational Rights and Privacy Act (FERPA) affords you certain rights with respect to your education records:

- The right to inspect and review your education records.

- The right to request the amendment of your education records to ensure that they are not inaccurate, misleading, or otherwise in violation of your privacy or other rights.
- The right to consent to disclosures of personally identifiable information contained in your education records, except to the extent that FERPA authorizes disclosure without consent.
- The right to file with the U.S. Department of Education a complaint concerning alleged failures by the university to comply with the requirements of FERPA.
- The right to obtain a copy of the university's student records policy.

You may obtain a copy of the policy from the Office of the Registrar in Cogswell-Alexander Hall. You will be notified annually of these rights in the Catalog and the Student Handbook.

### Directory Information

Directory information is normally released without student consent. If a student does not wish such information to be made public, he or she can fill out a request form available in the Office of Student Life. Directory information is defined as: "information that would not generally be considered harmful or an invasion of privacy if disclosed," including, but not limited to, "the student's name; address; telephone listing; electronic mail address; photograph; date and place of birth; major field of study; grade level; enrollment status (e.g., undergraduate or graduate, full-time or part-time); dates of attendance; participation in officially recognized activities or sports; weight and height of members of athletic teams; degrees, honors and awards received; and the most recent educational agency or institution attended.

### DROP AND ADD PROCEDURES

#### Dropping a Class

To drop a class, you must contact your advisor of your academic program. Student-athletes must also obtain the signature of either the Assistant AD for Compliance or the Director of Academic Excellence in Athletics.

#### Drop/Add Dates for Specific Type of Class Structure

Based on 15 hours of "seat time" per credit hour offered:

#### Regular 15 Week Semester

- Cannot add after the 1st week of class
- Can drop without a grade of "W" weeks 1-4
- Can drop with a grade of "W" weeks 5-12
- Cannot drop after week 12

#### Seven Week Course

- Cannot add after week 1
- Can drop without a grade of "W" week 1
- Can drop with a grade of "W" weeks 2-6
- Cannot drop week 7

#### Adding a Class

To add a class, you must contact your advisor of your academic program.

#### Credit By Practicum

You may receive credit by practicum with the approval of your program chair. Professors will assign a regular grade in a course on the basis of your work, contact with you during the practicum, oral reports, research papers, and/or feedback from your employer.

You should take the initiative to find a practicum opportunity and have it approved by the program chair before the start of the practicum. Arrangements for periodic progress checks should be made with the program chair.

Agreements for practicums must note the number of credit hours the student will earn, as well as the workload requirements. Specific requirements may be required by your academic program, once the practicum is approved. Program chairs must consider the University's Assignment of Semester Credit Hours in determining practicum work requirements and the number of credits awarded. This document is publicly available on the website at <https://www.oc.edu/uploads/images/AssignmentofSemesterCreditHours.pdf>.

### STUDENTS AND VA BENEFITS

In keeping with minimum standards set by the state, these following guidelines will be followed in reporting to the Veterans Administration regional offices the attendance and academic progress of those who receive VA benefits:

1. If you drop out of school, OC will report the last date attended to assure that payments are terminated no later than the date when you stop attending a course.
2. OC also will report when you fail to maintain satisfactory progress. You will be placed on academic alert and should make a 2.0 GPA at the end of that semester or raise your cumulative GPA to the level of good standing required for your classification.

If you have questions about your VA benefits, contact the Office of the Registrar at 405-425-5206.

### STUDENTS WITH DISABILITIES

OC seeks to be learner-friendly for students with disabilities. If you have diagnosed disabilities, you should direct your inquiries to Michael Ferguson at 405- 425-1876. Disability documentation must be provided from an appropriately qualified professional (i.e., physician, psychiatrist, or psychologist). Each semester, you must meet with Mr. Ferguson to establish a specific accommodation plan. OC seeks to be helpful and cooperative. Nevertheless, the responsibility for learning rests with you and you must take the initiative to arrange for the accommodations. For specific policies, see the ADA Handbook, which is available in the Office of Student Life.

### GRADUATION DEADLINES

All graduate students must apply for graduation in the term in which they intend to complete their degrees. They should search for the Graduation Application under My Services in myOC. Deadlines for graduation applications are:

<b>Graduation Term/Date</b>	<b>Application Deadline</b>
Fall - December 12, 2025	Friday, October 3, 2025
Spring - May 1, 2026	Friday, March 6, 2026

Students who fail to apply for graduation by the deadline will not be permitted to participate in commencement. Students will be charged a \$100 graduation fee in the expected semester of graduation.

## ACADEMIC PROGRAMS OVERVIEW

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Curriculum and Instruction with an Emphasis in Social-Emotional Learning (M.Ed.)	
Curriculum and Instruction with an Emphasis in Teaching English Learners (M.Ed.)	
Curriculum and Instruction with an Emphasis in Teaching Students with Disabilities (M.Ed.)	
Teaching Students with Disabilities (M.Ed.)	
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Trauma-Informed Family Support (Certificate)	
Systemic Family Therapy (Certificate)	

# COLLEGE OF BUSINESS

## GRADUATE SCHOOL OF BUSINESS

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### AREAS OF STUDY

Accounting (ACCT)  
Business (BUSA)  
Finance (FINC)  
Information Systems (INFO)  
International Business (INTL)  
Management (MGMT)  
Marketing (MKTG)

### DEGREE OFFERED

M.Acc. Master of Accountancy  
M.B.A. Master of Business Administration  
MSPM Master of Science in Project Management

### FACULTY

Bill Goad, Ed.D., Professor of Business  
Wes McKinzie, M.A., Assistant Professor of Business  
Kimberly Merritt, D.B.A., Professor of Business  
Jillian Poyzer-Johnson, M.Acc. C.P.A., Assistant Professor of Accounting  
Kerianne Roper, D.B.A., Professor of Business  
Burton Smith, Ed.D., Professor of Marketing

### DEAN

Jeffery Simmons, D.B.A., Dean, College of Business, Professor of Business

### LOCATION

Harvey Business Hall

### SUMMARY OF DEGREE PROGRAMS

The Graduate School of Business (GSB) offers the Master of Accountancy (M.Acc.), Master of Business Administration (M.B.A.), and the Master of Science in Project Management (M.S.P.M.) degrees. The M.Acc. requires 30 credit hours - 18 hours of accounting and 12 hours of business law, economics, ethics, and finance. The M.B.A. requires 36-48 credit hours, depending on the student's prior study of foundational courses, including accounting, economics, management, and marketing.

The M.Acc. program focuses on advanced accounting practices, and research enhances business scholarship within the GSB. The M.Acc. curriculum is centered on creating accountants with the highest ethical and professional standards. The M.Acc. program seeks to provide students who major in accounting in their undergraduate studies with the opportunity to complete an academically rigorous master's degree and achieve the level of education needed to qualify for the Certified Public Accountant (CPA) exam, preparing them for careers in major corporations and public accounting firms.

The M.B.A. program seeks to fulfill the mission of OC to transform lives for Christian faith, scholarship, and service. To accomplish its mission, the GSB cultivates relationships among current and former students, business partners, and the University. It provides a rich, integrative learning experience to foster creative thinking and ingenuity and graduates people of character, integrity, competence, and knowledge.

The Master of Science in Project Management (MSPM) degree is designed for recent undergraduates from all backgrounds looking to launch a career in project management, or professionals at any level and in any industry who want to hone their decision-making and project management skills. Graduates of the MSPM program will

be better prepared to pursue the PMP certification, which is the premier professional certification in the field of project management.

### ADMISSION DETAILS FOR THE M.ACC. PROGRAM

#### Admission Requirements for Degree-Seeking Applicants

Requirements are as follows:

- Completed application
- Bachelor's degree from a regionally-accredited U.S. institution or international equivalent (students from all academic disciplines are invited to apply)
- Student has taken finance and micro and macroeconomics
- Student has successfully completed 30 hours of accounting, to include tax and auditing
- Official transcripts for all degree(s) received
- Official transcripts for any courses not listed in the degree transcripts that might be relevant to the graduate program (if such transcripts are not submitted, leveling courses may be required)
- Minimum 3.0 undergraduate GPA
- For international applicants, please see additional requirements on page 10.

GRE and GMAT test scores are NOT needed if you have:

- An undergraduate GPA of 3.25 or higher
- An undergraduate GPA of 3.0 or higher AND five years of verifiable work experience
- At least nine hours of "B" or better graduate work from a regionally-accredited university

Students who do need to submit scores need scores from one of these two exams. Exams must have been taken within the past five years.

- GMAT score of 450
- GRE score of 285 with a 3.0 writing component

This requirement of national test scores can be waived by the Chair of the Graduate School of Business if appropriate.

If enrollment requirements are otherwise met, the student will be granted provisional entry for the first semester and must maintain a GPA of 3.0 or higher. Provisional admission may be granted to applicants with a bachelor's degree in disciplines other than accounting, but who have successfully completed 30 hours of fundamental undergraduate courses in accounting.

### ADMISSION DETAILS FOR THE M.B.A. and M.S.P.M. PROGRAMS

#### Admission Requirements for Degree-Seeking Applicants

Requirements are as follows:

- Completed application
- Bachelor's degree from a regionally-accredited U.S. institution or international equivalent (students from all academic disciplines are invited to apply).
- Official transcripts for all degree(s) received
- Official transcripts for any courses not listed in the degree transcripts that might be relevant to the graduate program (if such transcripts are not submitted, leveling courses may be required)
- Minimum 2.5 undergraduate GPA
- TOEFL paper score of 550 or computer score of 213 or web-based score of 79 or higher (international students only)

- For international applicants, please see additional requirements on page 10.

The M.B.A. program seeks to prepare students for the world of business. Such preparation and equipping require instruction in both business theory and applied, practical skills. Consequently, the M.B.A. is an integrated program of rigorous studies and intense skill development for persons who desire to equip themselves for professional and personal growth.

National test scores are NOT needed if you have:

- An undergraduate GPA of 3.25 or higher
- An undergraduate GPA of 3.0 or higher AND five years of verifiable work experience
- At least nine hours of "B" or better graduate work from a regionally-accredited university

Students who do need to submit scores need scores from one of these two exams.

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This requirement of national test scores can be waived by the Chair of the Graduate School of Business if appropriate.

If enrollment requirements are otherwise met, the student will be granted provisional entry for the first semester and must maintain a GPA of 3.0 or higher. Provisional admission may be granted to applicants with a bachelor's degree in disciplines other than accounting, but who have successfully completed 30 hours of fundamental undergraduate courses in accounting, economics, management, or marketing.

## **GRADUATION**

Candidates for degrees must complete an online application for graduation on myOC during the first two weeks of the semester in which they plan to graduate.

## **TESTING**

To ensure the academic integrity of the online programs, all online courses will have at least one proctored exam or assessment. In order to graduate, M.Acc.

students must complete the Common Professional Component Based Competency Exam by Peregrine Academic Services. To assess specific accounting and business topic learning outcomes, the M.Acc. students' scores on the Peregrine Exam will be compared to other ACBSP schools' average scores. The program standard is that OC's average score be at or above the national average in each category.

In order to graduate, M.B.A. students must complete the Major Field Test at the end of their program. This national standardized test will have an impact on the student's grade for the M.B.A. capstone course. It is a comprehensive test assessing the M.B.A. student's overall education and skills in the core subjects. The test will be administered online with ETS during Strategic Management class time. See the Chair of the Graduate School of Business for additional information.

## **TRANSFER CREDIT**

There is no automatic transfer of credit toward meeting degree requirements. The Chair of the Graduate School of Business must approve work accepted for credit. No work with a grade of less than "B" will be considered to meet program requirements. No more than six transfer hours may be used to fulfill degree requirements.

## **"C" GRADES**

In addition to general retention requirements for graduate students, M.Acc., M.B.A., and M.S.P.M. students are allowed only two grades of "C" in their program. A student receiving a third "C" will be required to repeat one of the courses to improve their grade for that course to "B" or better.

## **CURRICULAR PRACTICAL TRAINING**

Industry internship/practicum is classified as an elective course of one to three credit hours. It will be counted toward the 36 hours required to earn the degree. Students selecting this option will be responsible for locating an appropriate industry opportunity themselves. The student will need to work closely with the Chair of the Graduate School of Business to receive necessary approvals PRIOR to starting the practicum.

## **M.ACC. DEGREE IN ACCOUNTING**

### **30 HOURS\***

The Master of Accountancy (M.Acc.) degree consists of 30 credit hours for students possessing undergraduate degrees in accounting or students who have completed 30 hours of accounting and have a bachelor degree. The core of the M.Acc. degree focuses on advanced accounting topics. The program will utilize "hands-on" experiences and theory-based research. Of the 30 graduate credit hours, 18 hours (six courses) are devoted to accounting and 12 hours (four courses) focus on other business-related topics.

A graduate with the M.Acc. degree in Accounting will able to:

1. Inform their professional behavior with understanding of the ethical standards of a Christian worldview.
2. Command a diverse knowledge base and apply it effectively and ethically.
3. Recognize when information is needed and locate, evaluate, and use the needed information effectively.
4. Use the appropriate quantitative and qualitative methodologies to process and organize information into useful forms and models.
5. Reach, accept, or create appropriate conclusions and works after a comprehensive exploration of options, issues, ideas, artifacts, and events.
6. Use an understanding of how meanings are constructed between people to form relationships and communicate information effectively via oral, written, and interpersonal means.
7. Demonstrate awareness of the impact the graduate, other individuals, and societies can have in their world and express that awareness with compassion and respect for self and others of similar and different worldviews and cultures.

\*Students with only 24 hours of undergraduate accounting will be required to take ACCT-5003 (only offered during the summer).

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#### **0-3 HOURS ACCOUNTING LEVELING**

ACCT-5003 Issues in Advanced Accounting Concepts

#### **18 HOURS ACCOUNTING FOUNDATION STUDIES**

ACCT-5113 Advanced Tax Accounting

ACCT-5123 Advanced Auditing and Professional Ethics

ACCT-5133 Advanced Financial Accounting

ACCT-5143 Topics in Accounting

ACCT-5153 Accounting Theory

ACCT-5163 Accounting Research and Quantitative Techniques

#### **12 HOURS BUSINESS**

BUSA-5010 GSB Orientation

BUSA-5203 Managerial Economics

BUSA-5213 Legal and Regulatory Issues

FINC-5103 Financial Management

MGMT-5603 Managerial Ethics

## **M.B.A. DEGREE**

### **36 HOURS\***

The Master of Business Administration (M.B.A.) degree consists of 36 credit hours for students possessing undergraduate degrees in a business discipline or up to 48 credit hours for students from non-business disciplines. The coursework includes equipping the student with tools for graduate study, advanced studies in business, and training in practical leadership/management skills.

A graduate with the M.B.A. degree will be able to:

1. Inform their professional behavior with understanding of the ethical standards of a Christian worldview.
2. Command a diverse knowledge base and apply it effectively and ethically.
3. Recognize when information is needed and locate, evaluate, and use the needed information effectively.
4. Use the appropriate quantitative and qualitative methodologies to process and organize information into useful forms and models.
5. Reach, accept, or create appropriate conclusions and works after a comprehensive exploration of options, issues, ideas, artifacts, and events.
6. Use an understanding of how meanings are constructed between people to form relationships and communicate information effectively via oral, written, and interpersonal means.
7. Demonstrate awareness of the impact the graduate, other individuals, and societies can have in their world and express that awareness with compassion and respect for self and others of similar and different worldviews and cultures.

\*Students without a previous degree in business may need up to 12 hours of leveling courses.

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#### **0-12 HOURS BUSINESS LEVELING**

BUSA-5013 Economic and Quantitative Analysis  
BUSA-5023 Marketing and the Legal Environment  
BUSA-5033 Accounting and Financial Resources  
BUSA-5043 Organizational and Operations Management

#### **36 HOURS BUSINESS FOUNDATION**

BUSA-5010 GSB Orientation  
ACCT-5103 Accounting Analytics  
BUSA-5203 Managerial Economics  
BUSA-5213 Legal and Regulatory Issues  
BUSA-5723 Data Driven Decisions  
FINC-5103 Financial Management  
INFO-5303 Business Intelligence  
MGMT-5603 Managerial Ethics  
MGMT-5613 Leader Effectiveness  
MGMT-5623 Team and Group Leadership  
MGMT-5643 Organizational Development and Design  
MGMT-5653 Strategic Management  
MKTG-5703 Marketing Management

## **M.S. DEGREE WITH AN EMPHASIS IN PROJECT MANAGEMENT**

### **33 HOURS\***

The Master of Science in Project Management (M.S.P.M.) degree is designed for recent undergraduates from all backgrounds (not just business majors) looking to launch a career in project management, or professionals at any level and in any industry who want to hone their decision-making and project management skills.

The MSPM will give students the knowledge and skills to be able to analyze and solve complex business problems and more effectively lead projects to success. The program's curriculum will incorporate data analysis, quantitative methods, and modeling with project management techniques and principles. Graduates of the program will, therefore, be better prepared for the demands of industry. As such it will be a STEM designated program which will make international graduates eligible to extend their Optional Practical Training from 1 year to 3 years.

A graduate with the M.S. degree will able to:

1. Understand market fluctuations and prepare for changes affecting careers, profit, financial decision making, capital outlays, and production
2. Understand economic factors facing today's project managers
3. Understand how to apply leadership principles to lead projects
4. Compare the roles of ethics, values, and morals in the professional world, and set ethical standards individually and organizationally
5. Gain mastery of the expectations in project management
6. Demonstrate the skills to analyze and optimize both planning and logistic problems using spreadsheet tools and data analysis software
7. Demonstrate understanding of the full data analysis process and what is required at each stage
8. Accurately analyze and describe the intervention techniques to affect change in a business organization

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#### **REQUIRED ORIENTATION**

BUSA-5010 GSB Orientation

#### **33 HOURS REQUIRED**

ACCT-5103 Accounting Analytics  
BUSA-5203 Managerial Economics  
BUSA-5243 Management Science and Operations  
BUSA-5253 Project and Technology Management  
BUSA-5263 Quality Assurance & Control  
INFO-5303 Business Intelligence  
FINC-5103 Financial Management  
FINC-5133 Risk Management  
MGMT-5603 Managerial Ethics  
MGMT-5613 Leader Effectiveness  
MGMT-5683 Agile Project Management

# COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

## GRADUATE SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

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### AREAS OF STUDY

Computer Engineering (CENG)  
Computer Science (CMSC)  
Electrical Engineering (ELEC)  
Engineering (ENGR)  
Mathematics (MATH)  
Mechanical Engineering (MECH)

### DEGREES OFFERED

M.S.C.S. Master of Science in Computer Science  
Emphasis in Artificial Intelligence  
Emphasis in Cyber Security  
Emphasis in Data Science  
Emphasis in Software Engineering  
M.S.E. Master of Science in Engineering

### FACULTY

Jeff Bigelow, Ph.D., Chair, Electrical and Computer Engineering; Professor of Electrical and Computer Engineering  
Jennifer Bryan, Ph.D., Chair, Mathematics; Professor of Mathematics  
Curtis Coleman, Ph.D. candidate, Assistant Professor of Computer Science  
Colin Doyle, Ph.D., Assistant Professor of Electrical and Computer Engineering  
Daniel Griffin, B.S.C.E., Instructor of Computer Science  
Steven Maher, M.S.E.E., Associate Professor of Electrical and Computer Engineering  
Robert Nix, Ph.D., Associate Professor of Computer Science  
David North, M.S., Chair, Computer Science; Associate Professor of Computer Science  
Kevin Plumlee, Ph.D., Chair, Mechanical Engineering; Associate Professor of Mechanical Engineering  
Pat Smith, M.S., Associate Professor of Computer Science  
David Waldo, Ph.D., Professor of Electrical and Computer Engineering

### DEAN

Byron Newberry, Ph.D., Dean, Division of Engineering and Computer Science; Chair, Graduate School of Engineering and Computer Science; Professor of Mechanical Engineering

### LOCATION

Prince Engineering Center

### PURPOSE AND OBJECTIVES

The M.S.C.S. and M.S.E. programs in the Graduate School of Engineering and Computer Science seek to fulfill the mission of OC to transform lives for Christian faith, scholarship, and service. Both are rigorous educational programs with a broad selection of classes that will enhance the abilities of new computer science and engineering graduates and practicing professionals who aspire to make significant contributions in technology, innovation, and productivity. The program is designed to allow a student to select areas that will add depth and breadth to their technical and business knowledge.

The graduate of the M.S.C.S. and M.S.E. programs at OC should have the following characteristics:

1. Increased depth of knowledge in the chosen computer science or engineering major, including a blend of current theory and practice.
2. Increased breadth of knowledge extending beyond the chosen computer science or engineering major into other business, computer science, engineering, and/or mathematics topics.
3. Enhanced communication skills within the practice of computer science or engineering and the management of technology.
4. Knowledge of issues of ethics and social responsibility and an understanding of Christian values and faith.

### SUMMARY

The M.S.C.S. requires a minimum of 30 credit hours of coursework for students possessing an accredited undergraduate degree in computer science. Those who have a degree in a closely related field like mathematics or engineering will be considered for admission based on their college work and an appropriately proposed plan of study. To be successful in the M.S.C.S. program, a student should have a background in mainstream computer science. This includes experience with procedural and OO programming languages (e.g. Ada, C, C++, Java, Pascal, or Smalltalk) and a background in computer architecture or assembly language, data structures, operating systems, software engineering, and database and related mathematics (e.g. mathematical logic, discrete mathematics, and calculus). A student who lacks experience in these areas may be admitted with deficiencies and required to take courses to remedy the deficiencies.

The M.S.E. is obtained by completing a minimum of 30 credit hours of coursework. The program is offered on campus, though some classes are also offered online. The degree allows flexibility so that recent graduates and those who have been working in their careers for some time will have the ability to incorporate academic topics that are most useful for their future directions.

### CURRICULAR PRACTICAL TRAINING

Completion of 30 credit hours with a GPA of 3.0 or greater is required for graduation from the M.S.C.S. and M.S.E. programs. Students will be allowed to select a practicum option if they wish to make industry experience part of their educational plan. Students are allowed to enroll in up to three hours of Graduate Computer Science Practicum or Graduate Engineering Practicum. Students selecting this option will be responsible for locating an appropriate industry opportunity themselves. The student will need to work closely with the M.S.C.S. or M.S.E. chair to receive necessary approvals PRIOR to starting the practicum.

## **ADMISSION DETAILS**

### **Admission Requirements for Degree-Seeking Applicants**

Requirements are as follows:

- Completed application
- An accredited bachelor's degree from a university in the United States that aligns with the program being pursued (refer to the list below). Degrees from international universities must be evaluated to determine U.S. equivalency.
- To pursue an M.S.C.S. degree, a student must have a B.S. degree in computer science. If a student does not have a B.S. degree in computer science, up to four leveling classes may be required in addition to the 10 M.S.C.S. classes.
- To pursue an M.S.E. degree, a student must have a B.S. degree in computer, electrical, or mechanical engineering. Other closely related degrees will be considered.
- Official transcripts for all degrees received.
- Official transcripts for any courses not listed in the degree transcripts that might be relevant to the graduate program. (If such transcripts are not submitted, leveling courses may be required.)
- Minimum undergraduate GPA of 2.5 required.
- Minimum GRE test score of 285 with a 3.0 writing component, taken within the past five years.
- For international applicants, please see additional requirements on page 10.

GRE test scores are NOT needed if you have:

- A minimum undergraduate GPA of 3.0
- Five years of documented technical work experience
- At least nine hours of "B" or better graduate work from a regionally-accredited university

This requirement of GRE test scores can be waived by the Chair of the Graduate School of Engineering and Computer Science if appropriate.

## **PROVISIONAL ADMISSION**

Students may be provisionally admitted if they meet all admission requirements, but have an academic background that is not closely aligned with the program to which they are applying. The provisional admission letter will specifically state the leveling work (may be multiple classes) required to pursue the program. Provisional admission is not allowed for other deficiencies in the admission requirement.

## **AUDIT ADMISSION**

Students may be admitted to audit classes only. An application for admission must be submitted, but no official academic credentials are required.

## **OTHER CONSIDERATIONS**

Undergraduate students in computer science and engineering programs at OC may be accepted into an OC graduate program during their junior or senior year as part of a dual undergraduate/graduate degree program. Students should refer to the dual degree requirements in OC's Undergraduate Academic Catalog.

All leveling courses required by the chair for admission, including undergraduate courses, must be completed with a grade of "C" or higher. In certain cases, the student's graduate committee may approve a 3000 or 4000 level course that is not cross listed for the plan of study. The Graduate School of Engineering and Computer Science maintains a list of undergraduate courses that may be appropriate.

## **TRANSFER CREDIT**

Up to nine semester hours of graduate credit may be transferred into the M.S.C.S. and M.S.E. programs upon approval of the faculty. The classes should be taken at a regionally or nationally accredited university. Engineering courses must be taken at a school with ABET accredited programs. A grade of "B" or higher is required and the work must have been completed within the last seven years.

# **M.S.C.S. DEGREE IN COMPUTER SCIENCE WITH AN EMPHASIS IN ARTIFICIAL INTELLIGENCE**

## **30 HOURS**

The Master of Science in Computer Science (M.S.C.S.) degree requires a minimum of 30 credit hours of coursework for students possessing an accredited undergraduate degree in computer science. Those who have a degree in a closely related field like mathematics or engineering will be considered for admission based on their college work and an appropriately proposed plan of study. To be successful in the M.S.C.S. program, a student should have a background in mainstream computer science. This includes experience with procedural and OO programming languages (e.g., Ada, C, C++, Java, Pascal, or Smalltalk) and a background in computer architecture or assembly language, data structures, operating systems, software engineering and database, and related mathematics (e.g., mathematical logic, discrete mathematics, and calculus). A student who lacks experience in these areas may be admitted with deficiencies and required to take courses to remedy the deficiencies.

A graduate of the M.S.C.S. degree will:

1. Know and be able to demonstrate computer science principles in the use and development of software systems. These include abstraction, binding, encapsulation, algorithms, data information and knowledge, reuse, efficiency, creativity and innovation, and trade-offs and consequences.
2. Posses an advanced understanding of core computer science knowledge. This includes programming languages, data structures, algorithms, computer architecture, operating systems, databases, and internet technologies.
3. Be able to use advanced computer science skills in the use and development of software systems. These include problem solving, programming, software engineering and management processes, communication, team work, and learning.
4. Be able to apply a Christian worldview in the practice of computer science. This includes ethical decision making, using technology for good, using technology to serve others, and using their abilities in a vocation.
5. Be prepared for a career and/or vocation in computer science, especially in artificial intelligence.

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### **12 HOURS COMPUTER SCIENCE FOUNDATION**

CMSC-5003 Foundations of Technology Ethics and Values  
CMSC-5343 Algorithm Analysis  
CMSC-5613 Object Oriented Software Engineering  
CMSC-5713 Artificial Intelligence

### **6 HOURS ELECTIVES CHOSEN FROM**

Choose 6 hours of 5000 level CMSC not already taken

### **12 HOURS ARTIFICIAL INTELLIGENCE**

CMSC-5723 Machine Learning  
CMSC-5753 Intelligent Systems  
CMSC-5763 Artificial Intelligence Project I  
CMSC-5773 Artificial Intelligence Project II

# M.S.C.S. DEGREE IN COMPUTER SCIENCE WITH AN EMPHASIS IN CYBERSECURITY

## 30 HOURS

The Master of Science in Computer Science (M.S.C.S.) degree requires a minimum of 30 credit hours of coursework for students possessing an accredited undergraduate degree in computer science. Those who have a degree in a closely related field like mathematics or engineering will be considered for admission based on their college work and an appropriately proposed plan of study. To be successful in the M.S.C.S. program, a student should have a background in mainstream computer science. This includes experience with procedural and OO programming languages (e.g., Ada, C, C++, Java, Pascal, or Smalltalk) and a background in computer architecture or assembly language, data structures, operating systems, software engineering and database, and related mathematics (e.g., mathematical logic, discrete mathematics, and calculus). A student who lacks experience in these areas may be admitted with deficiencies and required to take courses to remedy the deficiencies.

A graduate of the M.S.C.S. degree will:

1. Know and be able to demonstrate computer science principles in the use and development of software systems. These include abstraction, binding, encapsulation, algorithms, data information and knowledge, reuse, efficiency, creativity and innovation, and trade-offs and consequences.
2. Posses an advanced understanding of core computer science knowledge. This includes programming languages, data structures, algorithms, computer architecture, operating systems, databases, and internet technologies.
3. Be able to use advanced computer science skills in the use and development of software systems. These include problem solving, programming, software engineering and management processes, communication, team work, and learning.
4. Be able to apply a Christian worldview in the practice of computer science. This includes ethical decision making, using technology for good, using technology to serve others, and using their abilities in a vocation.
5. Be prepared for a career and/or vocation in computer science, especially in cyber security.

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### 12 HOURS COMPUTER SCIENCE FOUNDATION

CMSC-5003 Foundations of Technology Ethics and Values

CMSC-5343 Algorithm Analysis

CMSC-5613 Object Oriented Software Engineering

CMSC-5713 Artificial Intelligence

### 6 HOURS ELECTIVES CHOSEN FROM

Choose 6 hours of 5000 level CMSC not already taken

### 12 HOURS CYBERSECURITY

CMSC-5653 Cloud Architecture and Security

CMSC-5663 Network Forensics

CMSC-5673 Computer Systems Risk Management

CMSC-5683 Offensive Security and Penetration Testing

# M.S.C.S. DEGREE IN COMPUTER SCIENCE WITH AN EMPHASIS IN DATA SCIENCE

## 30 HOURS

The Master of Science in Computer Science (M.S.C.S.) degree requires a minimum of 30 credit hours of coursework for students possessing an accredited undergraduate degree in computer science. Those who have a degree in a closely related field like mathematics or engineering will be considered for admission based on their college work and an appropriately proposed plan of study. To be successful in the M.S.C.S. program, a student should have a background in mainstream computer science. This includes experience with procedural and OO programming languages (e.g., Ada, C, C++, Java, Pascal, or Smalltalk) and a background in computer architecture or assembly language, data structures, operating systems, software engineering and database, and related mathematics (e.g., mathematical logic, discrete mathematics, and calculus). A student who lacks experience in these areas may be admitted with deficiencies and required to take courses to remedy the deficiencies.

A graduate of the M.S.C.S. degree will:

1. Know and be able to demonstrate computer science principles in the use and development of software systems. These include abstraction, binding, encapsulation, algorithms, data information and knowledge, reuse, efficiency, creativity and innovation, and trade-offs and consequences.
2. Posses an advanced understanding of core computer science knowledge. This includes programming languages, data structures, algorithms, computer architecture, operating systems, databases, and internet technologies.
3. Be able to use advanced computer science skills in the use and development of software systems. These include problem solving, programming, software engineering and management processes, communication, team work, and learning.
4. Be able to apply a Christian worldview in the practice of computer science. This includes ethical decision making, using technology for good, using technology to serve others, and using their abilities in a vocation.
5. Be prepared for a career and/or vocation in computer science, especially in data science.

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### 12 HOURS COMPUTER SCIENCE FOUNDATION

CMSC-5003 Foundations of Technology Ethics and Values  
CMSC-5343 Algorithm Analysis  
CMSC-5613 Object Oriented Software Engineering  
CMSC-5713 Artificial Intelligence

### 6 HOURS ELECTIVES CHOSEN FROM

Choose 6 hours of 5000 level CMSC not already taken

### 12 HOURS DATA SCIENCE

CMSC-5353 Big Data Management  
CMSC-5363 Data Science Project I  
CMSC-5373 Data Science Project II  
CMSC-5723 Machine Learning

# M.S.C.S. DEGREE IN COMPUTER SCIENCE WITH AN EMPHASIS IN SOFTWARE ENGINEERING

## 30 HOURS

The Master of Science in Computer Science (M.S.C.S.) degree requires a minimum of 30 credit hours of coursework for students possessing an accredited undergraduate degree in computer science. Those who have a degree in a closely related field like mathematics or engineering will be considered for admission based on their college work and an appropriately proposed plan of study. To be successful in the M.S.C.S. program, a student should have a background in mainstream computer science. This includes experience with procedural and OO programming languages (e.g., Ada, C, C++, Java, Pascal, or Smalltalk) and a background in computer architecture or assembly language, data structures, operating systems, software engineering and database, and related mathematics (e.g., mathematical logic, discrete mathematics, and calculus). A student who lacks experience in these areas may be admitted with deficiencies and required to take courses to remedy the deficiencies.

A graduate of the M.S.C.S. degree will:

1. Know and be able to demonstrate computer science principles in the use and development of software systems. These include abstraction, binding, encapsulation, algorithms, data information and knowledge, reuse, efficiency, creativity and innovation, and trade-offs and consequences.
2. Posses an advanced understanding of core computer science knowledge. This includes programming languages, data structures, algorithms, computer architecture, operating systems, databases, and internet technologies.
3. Be able to use advanced computer science skills in the use and development of software systems. These include problem solving, programming, software engineering and management processes, communication, team work, and learning.
4. Be able to apply a Christian worldview in the practice of computer science. This includes ethical decision making, using technology for good, using technology to serve others, and using their abilities in a vocation.
5. Be prepared for a career and/or vocation in computer science, especially in software engineering.

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### 12 HOURS COMPUTER SCIENCE FOUNDATION

CMSC-5003 Foundations of Technology Ethics and Values

CMSC-5343 Algorithm Analysis

CMSC-5613 Object Oriented Software Engineering

CMSC-5713 Artificial Intelligence

### 6 HOURS ELECTIVES CHOSEN FROM

Choose 6 hours of 5000 level CMSC not already taken

### 12 HOURS SOFTWARE ENGINEERING

CMSC-5533 Software System Architecture

CMSC-5633 Patterns of Object Oriented Systems

CMSC-5733 Software Engineering Projects I

CMSC-5743 Software Engineering Projects II

# **M.S.E. DEGREE IN ENGINEERING**

## **30 HOURS\***

A graduate of the Master of Science in Engineering (M.S.E.) degree will be able to demonstrate:

1. The ability to critically examine and manage contemporary challenges of the engineering profession, including professional ethics, diversity, and globalization
  - a. Ethical awareness and decision making relative to contemporary engineering practice.
  - b. Awareness and respect for diversity and global issues.
2. That they are broadly equipped to both contribute to and lead multidisciplinary engineering projects.
  - a. Appropriate solution strategies.
  - b. The ability to perform mature technical assessment and evaluation.
3. Scholarship with depth beyond the B.S. degree with the students' chosen field of specialization.
  - a. The ability to perform individual research.
  - b. The ability to communicate in appropriate scholarly forms for the discipline.

\*Students without a previous degree in engineering may need three or more hours of leveling.

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### **15 HOURS ENGINEERING FOUNDATION**

ENGR-5003 Foundations of Technology Ethics and Values

ENGR-5203 Systems Engineering

ENGR-5213 Tools of Operations Research

ENGR-5223 Systems Engineering Management

ENGR-5323 Failure Analysis of Engineering Systems

### **3 HOURS PROFESSIONAL COMMUNICATION**

ENGR-5413 Professional Communications\*\*\*

\*\*\* This class can be replaced with an elective if the student has a GRE writing score of 3.0 or holds an undergraduate degree from an ABET accredited program.

### **12 HOURS OF GRADUATE LEVEL ENGINEERING ELECTIVES**

Choose from CENG, ELEC, ENGR, MATH, or MECH courses not already taken.

# COLLEGE OF OUTREACH AND INNOVATION

## GRADUATE EDUCATION PROGRAM

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### DEGREES OFFERED

	Master of Arts in Teaching and Learning
M.Ed.	Master of Education in Curriculum and Instruction
	Master of Education in Curriculum and Instruction with a Computer Science Instruction Emphasis
	Master of Education in Curriculum and Instruction with an Early Literacy Emphasis
	Master of Education in Curriculum and Instruction with an English Language Arts Emphasis
	Master of Education in Curriculum and Instruction with a Math Emphasis
	Master of Education in Curriculum and Instruction with a Social-Emotional Learning Emphasis
	Master of Education in Curriculum and Instruction with a Teaching English Learners Emphasis
	Master of Education in Curriculum and Instruction with a Teaching Students with Disabilities Emphasis
	Master of Education in Teaching Students with Disabilities
	Master of Education in Technology and Computer Science Education with an Emphasis in K-8 Computer Science

All M.Ed. degrees in Curriculum and Instruction are non-licensure.

### CERTIFICATES OFFERED

Foundations in Curriculum and Instruction  
Learner Behavior Specialist  
Teaching English Learners  
Teaching Students with Disabilities

### ADMISSION TO THE GRADUATE EDUCATION PROGRAM

REQUIREMENTS FOR DEGREE-SEEKING APPLICANTS Pre-application requirements are as follows:

- Completed application.
- Bachelor's degree from a regionally accredited U.S. institution or a nationally recognized university outside of the U.S.
- Official transcripts for all degrees received.
- Official transcripts for any courses not listed in the degree transcript that might be relevant to the degree program (if such transcripts are not submitted, leveling courses may be required).
- A 2.75 cumulative undergraduate grade point average.
- Demonstrated English proficiency (non-native English speakers only). Please see page 10 of the Graduate Academic Catalog for information about the English proficiency requirement.
- For international students, please see page 10 of the Graduate Academic Catalog for information about requirements for international students.

Applicants with an undergraduate GPA of less than 2.75 may be admitted on probation. The applicant must complete one semester of graduate coursework with a cumulative GPA of 3.0 or higher. Successful completion of these requirements will lift the student's probationary status and allow them to continue in School of Education programs.

### PROBATIONARY ADMISSION

Probationary admission may be granted to applicants upon completion of all pre-admission requirements. Certain courses cannot be taken until all admission requirements are met. All admission requirements must be completed within the student's first semester in the program. If all admission requirements are not completed within this time period, the student's participation in the degree program may be terminated.

Students applying from unaccredited domestic schools will be considered on a case-by-case basis. An exception may be granted on request by the program chair and by approval of the college dean. If enrollment requirements are otherwise met, the student will be granted provisional entry for the first semester and must maintain a GPA of 3.0 or higher.

### ADMISSION REQUIREMENTS FOR SPECIAL (NON-DEGREE SEEKING) STUDENTS

Individuals who do not wish to enter a degree program or who are not eligible for regular admission, but whose educational attainment or experience qualifies them to enroll in certain courses, may be admitted as special students for up to 15 credit hours. Permission from the Dean of the College of Outreach and Innovation must be obtained to enroll in coursework beyond this limit. Special students must meet the same pre-admission requirements as degree-seeking students (except for undergraduate cumulative GPA) and must meet all prerequisites for the courses in which they enroll. Work completed in the special student status does not automatically apply toward degree requirements in the event that the non-degree status is subsequently changed to degree-seeking classification.

Admission requirements for special students are:

- Bachelor's degree from a regionally-accredited U.S. institution.
- Official transcripts for all degrees received.
- International students must meet the English competency requirement for all graduate programs. (This information can be found on page 10 of the Graduate Academic Catalog.)

Special students will be evaluated each semester before being allowed to continue studies.

## **ADMISSION FOR AUDIT STUDENTS**

An audit student attends classes, but should not expect to have work or assignments graded. Audit students must complete an online application and seek permission from instructors before enrolling. No other admission requirements apply to audit students. Audit students will be evaluated each semester before being allowed to continue studies.

## **ACADEMIC POLICIES FOR GRADUATE EDUCATION PROGRAM**

### **Graduation**

Candidates for degrees must make a written application for graduation in the Registrar's Office during the first two weeks of the semester in which they plan to graduate.

### **Transfer Credit**

There is no automatic transfer of credit toward degree requirements. Work accepted for credit must be approved by the chairperson of the graduate degree. No more than nine transfer hours may be used toward degree requirements and no work with less than "B" will be approved for transfer.

## **M.A. DEGREE IN TEACHING AND LEARNING WITH AN ELEMENTARY EDUCATION EMPHASIS**

### **36 HOURS**

The Master of Arts in Teaching and Learning is designed for participants who have a bachelor's degree in a field other than education and are working in a classroom as a long-term substitute or on a temporary teaching certificate. The program consists of courses centered on foundational skills for instruction such as curriculum, classroom culture, and quality instruction. This program is designed to lead to alternative teaching certification in qualifying states.

This degree is aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) core teaching standards, which outline the common principles and foundations of teaching practice that cut across all subject areas and grade levels and that are necessary to improve student achievement. Teachers who successfully complete this degree have demonstrated these skills within their classroom and school, through portfolio-based artifacts.

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#### **36 HOURS OF EDUCATION CORE COURSES**

EDUC-5563	Internalizing Curriculum
EDUC-5473	Essentials of Classroom Culture
EDUC-5543	Instructional Delivery
EDUC-5443	Relationships
EDUC-5423	Student Support
EDUC-5453	Essentials of Assessment
EDUC-5583	ELA Methods I
EDUC-5483	Math I: Analyzing and Applying Math Standards
EDUC-5513	Disciplinary Methods I
EDUC-5433	Science of Reading
EDUC-5533	Psychology of Education
EDUC-5523	Special Populations

## **M.A. DEGREE IN TEACHING AND LEARNING WITH AN EMPHASIS IN SECONDARY EDUCATION**

### **36 HOURS**

The Master of Arts in Teaching and Learning is designed for participants who have a bachelor's degree in a field other than education and are working in a classroom as a long-term substitute or on a temporary teaching certificate. The program consists of courses centered on foundational skills for instruction such as curriculum, classroom culture, and quality instruction. This program is designed to lead to alternative teaching certification in qualifying states.

This degree is aligned to the Interstate Teacher Assessment and Support Consortium (InTASC) core teaching standards, which outline the common principles and foundations of teaching practice that cut across all subject areas and grade levels and that are necessary to improve student achievement. Teachers who successfully complete this degree have demonstrated these skills within their classroom and school, through portfolio-based artifacts.

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#### **30 HOURS OF EDUCATION CORE COURSES**

EDUC-5563 Internalizing Curriculum  
EDUC-5473 Essentials Classroom Culture  
EDUC-5543 Instructional Delivery  
EDUC-5443 Relationships  
EDUC-5423 Student Support  
EDUC-5453 Essentials of Assessment  
EDUC-5533 Psychology of Education  
EDUC-5523 Special Populations  
EDUC-5463 Education as an Institution  
EDUC-5553 Essentials of Student-Centered Learning

#### **6 HOURS IN ONE CERTIFICATION AREA:**

##### **ENGLISH LANGUAGE ARTS**

EDUC-5583 ELA Methods I  
EDUC-5593 ELA Methods II

##### **MATH**

EDUC-5483 Math I: Analyzing and Applying Math Standards  
EDUC-5493 Math II: Supporting Mathematical Proficiencies

##### **SCIENCE**

EDUC-5373 Science Methods I  
EDUC-5383 Science Methods II

##### **SOCIAL STUDIES**

EDUC-5353 Social Studies Methods I  
EDUC-5373 Social Studies Methods II

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH A COMPUTER SCIENCE INSTRUCTION EMPHASIS - 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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## 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

## 9 HOURS COMPUTER SCIENCE INSTRUCTION

EDUC-5153 Computing and Society  
EDUC-5163 Computational Thinking  
EDUC-5173 Computing Systems and Basic Programming

## 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH A EARLY LITERACY EMPHASIS

## 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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### 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

### 9 HOURS EARLY LITERACY INSTRUCTION

EDUC-5673 Early Literacy I: Phonics & Word Study  
EDUC-5683 Early Literacy II: Fluency & Comprehension  
EDUC-5693 Early Literacy III: Writing

### 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH AN ELA EMPHASIS

## 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

5. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
6. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
7. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
8. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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### 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

### 9 HOURS ENGLISH LANGUAGE ARTS

EDUC-5583 ELA I: Fundamentals of ELA Instruction  
EDUC-5593 ELA II: Effective ELA Instruction  
EDUC-5663 ELA III: Supporting Students in ELA Instruction

### 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH A SOCIAL EMOTIONAL LEARNING EMPHASIS - 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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## 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

## 9 HOURS SOCIAL EMOTIONAL LEARNING

EDUC-5213 Establishing Social Emotional Learning Practices  
EDUC-5223 Expanding Social Emotional Learning Practices  
EDUC-5233 Sustaining and Evaluating Social Emotional Learning Practices

## 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH A TEACHING ENGLISH LEARNERS EMPHASIS - 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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## 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

## 9 HOURS TEACHING ENGLISH LEARNERS

EDUC-5603 Foundations of Supporting English Learners  
EDUC-5613 Principles of English Language Acquisition  
EDUC-5623 Effective Practices for Teaching English Learners I

## 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN CURRICULUM AND INSTRUCTION WITH A TEACHING STUDENTS WITH DISABILITIES EMPHASIS - 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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## 18 HOURS EDUCATION FOUNDATION

EDUC-5003 Foundations of Instruction  
EDUC-5043 Foundations of Learning Recovery  
EDUC-5053 Foundations of Student Centered Learning  
EDUC-5063 Foundations of Addressing Student Well-Being  
EDUC-5073 Foundations of Classroom Culture  
EDUC-5083 Foundations of Teacher Leadership

## 9 HOURS TEACHING STUDENTS WITH DISABILITIES

SPED-5003 Foundations of Supporting Students with Disabilities  
SPED-5013 Characteristics of Students with Disabilities  
SPED-5033 Methods for Teaching Students with Disabilities

## 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE CURRICULUM AND INSTRUCTION WITH A MATH EMPHASIS

## 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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### 18 HOURS EDUCATION FOUNDATION

EDUC-5153 Computing and Society  
EDUC-5163 Computational Thinking  
EDUC-5173 Computing Systems and Basic Programming  
EDUC-5243 Foundations of Computer Science Instruction  
EDUC-5253 Integrating Computer Science Practices  
EDUC-5263 Cybersecurity

### 9 HOURS MATH

EDUC-5483 Math I: Analyzing and Applying Math Standards  
EDUC-5493 Math II: Supporting Mathematical Proficiencies  
EDUC-5503 Math III: Ensuring Mathematical Progress Through Assessment and Intervention

### 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# M.ED. DEGREE IN TEACHING STUDENTS WITH DISABILITIES EMPHASIS

## 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

5. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
6. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
7. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
8. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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### 21 HOURS EDUCATION FOUNDATION

- SPED-5003 Foundations of Supporting Students with Disabilities
- SPED-5013 Characteristics of Students with Disabilities
- SPED-5023 Intervention, Identification, and Core Content for Students with Disabilities
- SPED-5033 Methods for Teaching Students with Disabilities
- SPED-5043 Methods for Teaching Students with Disabilities II
- SPED-5053 Professionalism and Collaboration for Educators Working with Students with Disabilities
- SPED-5133 Characteristics of Students with Severe and Profound Disabilities

### 6 HOURS TEACHING STUDENTS WITH DISABILITIES CHOSEN FROM

- EDUC-5063 Foundations of Addressing Student Well-being
- EDUC-5433 The Science of Reading
- SPED-5143 Cultivating Leadership Skills to Support Students with Disabilities
- SPED-5153 Supporting English Learners with Disabilities

### 3 HOURS CAPSTONE

- EDUC-5711 Capstone I
- EDUC-5721 Capstone II
- EDUC-5731 Capstone III

# M.ED. DEGREE IN TECHNOLOGY AND COMPUTER SCIENCE EDUCATION WITH A K-8 COMPUTER SCIENCE EMPHASIS - 30 HOURS

A graduate with the Master of Education (M.Ed.) degree will hold knowledge and skills in the following areas:

1. The Learner and Learning
  - a. Learner Development: The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.
  - b. Learning Differences: The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.
  - c. Learning Environments: The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.
2. Content
  - a. Content Knowledge: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) they teach and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.
  - b. Application of Content: The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.
3. Instructional Practice
  - a. Assessment: The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and the learner's decision making.
  - b. Planning for Instruction: The teacher plans instruction and supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.
  - c. Instructional Strategies: The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.
4. Professional Responsibility
  - a. Professional Learning and Ethical Practice: The teacher engages in ongoing professional learning and uses evidence to continually evaluate their practice, particularly the effects of their choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.
  - b. Leadership and Collaboration: The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

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## 18 HOURS EDUCATION FOUNDATION

EDUC-5153 Computing and Society  
EDUC-5163 Computational Thinking  
EDUC-5173 Computing Systems and Basic Programming  
EDUC-5243 Foundations of Computer Science Instruction  
EDUC-5253 Integrating Computer Science Practices  
EDUC-5263 Cybersecurity

## 9 HOURS K-8 COMPUTER SCIENCE

EDUC-5273 Pedagogical Practices that Support Computer Science Learning I  
EDUC-5283 Pedagogical Practices that Support Computer Science Learning II  
EDUC-5293 Promoting Inclusive Practices in Computer Science

## 3 HOURS CAPSTONE

EDUC-5711 Capstone I  
EDUC-5721 Capstone II  
EDUC-5731 Capstone III

# GRADUATE EDUCATION CERTIFICATES

## 15 HOURS FOUNDATIONS OF CURRICULUM AND INSTRUCTION CERTIFICATE CHOSEN FROM

- EDUC-5003 Foundations of Instruction
- EDUC-5043 Foundations of Learning Recovery
- EDUC-5053 Foundations of Student Centered Learning
- EDUC-5063 Foundations of Addressing Student Well-Being
- EDUC-5073 Foundations of Classroom Culture
- EDUC-5083 Foundations of Teacher Leadership

## 15 HOURS LEADERSHIP AND INNOVATION CERTIFICATE

- EDUC-5013 Program Planning and Evaluation
- EDUC-5023 Diversity and Inclusion
- EDUC-5033 Learning through Technology
- EDUC-5043 Graduate Practicum in Educational Leadership
- EDUC-5403 Educational Innovation

## 12 HOURS LEARNER BEHAVIOR SPECIALIST CERTIFICATE

- SPED-5003 Foundations of Supporting Students with Disabilities
- SPED-5013 Characteristics of Students with Disabilities
- SPED-5023 Intervention, Identification, and Assessment for Students with Disabilities
- SPED-5033 Methods for Teaching for Students with Disabilities

## 18 HOURS TEACHING ENGLISH LEARNERS

- EDUC-5603 Foundations of Supporting English Learners
- EDUC-5613 Principles of English Language Acquisition
- EDUC-5623 Effective Practices for Teaching English Learners I
- EDUC-5633 Effective Practices for Teaching English Learners II
- EDUC-5643 Effective Practices for Teaching English Learners III
- EDUC-5653 Professionalism in a Culturally and Linguistically Diverse Environment

## 18 HOURS TEACHING STUDENTS WITH DISABILITIES

- SPED-5003 Foundations of Supporting Students with Disabilities
- SPED-5013 Characteristics of Students with Disabilities
- SPED-5023 Intervention, Identification, and Assessment for Students with Disabilities
- SPED-5033 Methods for Teaching for Students with Disabilities I
- SPED-5043 Methods for Teaching for Students with Disabilities II
- SPED-5053 Methods for Teaching for Students with Disabilities III

# COLLEGE OF SCIENCES AND EDUCATION

## GRADUATE HUMAN SCIENCES PROGRAM

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### MISSION STATEMENT

Building on the University's mission to educate, mentor and inspire learners to fulfill their God-given potential, it is the mission of the graduate program in human sciences to employ the scientific study of families and close interpersonal relationships to prepare graduates to support health development and to offer primary, secondary, and tertiary services to families and individuals of all ages and a broad diversity of backgrounds/cultures.

The program will accomplish this mission with a learning environment that fosters an inclusive atmosphere valuing the collective and individual talents, skills, and perspectives of our learning and service communities in order to foster a culture of belonging, collaborative practice, innovation, and mutual respect.

### AREAS OF STUDY

Human Sciences (HMSC)

Marriage and Family Therapy (MFTH)

### DEGREES OFFERED

M.S.H.S. Master of Science in Human Sciences with an Emphasis in Marriage and Family Therapy

M.S.H.S. Master of Science in Human Sciences with an Emphasis in Systemic Studies

### CERTIFICATES OFFERED

Trauma-Informed Family Support

### FACULTY

Jessica Colls, Ph.D., Associate Professor of Marriage and Family Therapy

Julie Kellogg, M.S., Assistant Professor of Marriage and Family Therapy

Bobby Kern, Ph.D., Chair, Department of Psychology and Family Science,

Associate Professor of Psychology and Family Science

Ryan Newell, Ph.D., Professor of Psychology

Jennifer Patterson, M.S., Clinical Instructor and Clinic Director

### DEAN

Brent Sykes, Ed.D., Dean of the College of Sciences and Education, Professor of Education

### LOCATION

Heritage Plaza

### SUMMARY OF DEGREE PROGRAMS

The structure of the Master of Science in Human Sciences (M.S.H.S.) degree is grounded in systems theory and evidence-based practice, integrates a biopsychosocial-spiritual perspective, and provides opportunities for skill development through professional application and personal reflection.

### REQUIREMENTS FOR DEGREE-SEEKING APPLICANTS

**Pre-application requirements are as follows:**

- Completed application with a \$25 non-refundable application fee.
- Bachelor's degree from a regionally accredited U.S. institution or a nationally recognized university outside the U.S.

- Personal Statement (2-3 pages that explains how the candidate's background/experience influences their desire to pursue an M.S.H.S. in their chosen area of emphasis and how their degree will assist them in meeting their personal and professional goals).
- Resume or CV
- Official transcripts for all degrees received.
- Official transcripts for any courses not listed in the degree transcript that might be relevant to the degree program (if such transcripts are not submitted, leveling courses may be required).
- An undergraduate or graduate-level behavioral sciences statistics course is a prerequisite for admission or must be completed during the first semester of graduate coursework.
- A 3.0 cumulative undergraduate grade point average.
- Demonstrated English proficiency (non-native English speakers only). Please see page 10 of the catalog for information about the English proficiency requirement.
- For International students, please see page 10 of the catalog for information about requirements for international students.

### Additional Items to be submitted for consideration:

- Three academic or professional letters of reference.

### Applicants with an undergraduate GPA of less than 3.0 may be admitted on probation with the following provisions:

- The applicant may be required to complete a writing assessment through OC's Writing Center or by taking the GRE Writing Assessment and having the results sent to OC.
- If the above is required, the applicant must meet with the M.S.H.S. program director to discuss the results of the writing assessment and must complete any remedial work (if needed) as assigned by the program director. {The GRE Writing Assessment and remedial work (if assigned) must be completed before the student may enroll in any graduate coursework.}
- Once accepted, the applicant must complete one semester of graduate coursework with a cumulative graduate GPA of 3.0 or higher. Successful completion of these requirements will lift the student's probationary status and allow him or her to continue in Human Sciences programs.

### PROBATIONARY ADMISSION

Probationary admission may be granted to applicants upon completion of all pre-admission requirements. Certain courses cannot be taken until all admission requirements are met. All admission requirements must be completed within the student's first semester in the program. If all admission requirements are not completed within this time period, the student's participation in the degree program may be terminated.

Students applying from unaccredited domestic schools will be considered on a case-by-case basis. An exception may be granted on request by the program chair and by approval of the college dean. If enrollment requirements are otherwise met, the student will be granted provisional entry for the first semester and must maintain a GPA of 3.0 or higher.

### **Admission Requirements for Special (Non-Degree Seeking) Students**

Individuals who do not wish to enter a degree program or who are not eligible for regular admission but whose educational attainment or experience qualifies them to enroll in certain courses may be admitted as special students for up to 15 credit hours. Permission from the dean of the College of Humanities and Bible must be obtained to enroll in coursework beyond this limit. Special students must meet the same pre-admission requirements as degree-seeking students (except for undergraduate cumulative GPA) and must meet all prerequisites for the courses in which they enroll. Work completed in the special student status does not automatically apply toward degree requirements in the event that the non-degree status is subsequently changed to degree-seeking classification.

#### **Admission requirements for special students are:**

- Completed application with \$25 non-refundable application fee.
- Three letters of reference.
- Bachelor's degree from a regionally-accredited U.S. institution.
- Official transcripts for all degrees received.
- International students must meet the English proficiency requirement for the Human Sciences programs.

Special students will be evaluated each semester before being allowed to continue studies.

### **Admission for Audit Students**

An audit student attends classes, but should not expect to have work or assignments graded. Audit students must complete an online application and seek permission from instructors before enrolling. No other admission requirements apply to audit students. Audit students will be evaluated each semester before being allowed to continue studies.

### **Graduation**

Candidates for degrees must make a written application for graduation in the Registrar's Office during the first two weeks of the semester in which they plan to graduate and must also meet with the program director during this same time to schedule the comprehensive examination.

### **Distance Learning Courses**

Graduate credit through distance learning is available from OC for some courses in the curriculum. Students should be aware that while some courses are offered in a distance learning format, the majority of courses utilize a traditional, on campus format.

### **Transfer Credit**

There is no automatic transfer of credit toward degree requirements. Work accepted for credit must be approved by the chairperson of the graduate degree. No work with a grade of less than "B" will be considered to meet program requirements. Normally, no more than nine credit hours may be used to fulfill degree requirements for the M.S.H.S. degree program.

### **Progression Requirements**

Students who earn a grade of "C" in one course will be put on academic probation and will return to good standing the following completed semester with grades of "B" or above.

Students who earn a grade of "C" in two courses will be discontinued from the program.

# M.S.H.S. DEGREE WITH AN EMPHASIS IN MARRIAGE AND FAMILY THERAPY

## 49-56 HOURS

A graduate with the M.S.H.S. degree with an emphasis in Marriage and Family Therapy will:

1. Demonstrate systemic/relational knowledge essential to practice of Marriage & Family Therapy.
2. Be culturally responsive in their work with people from diverse backgrounds, communities, and identities.
3. Demonstrate an understanding of relevant ethical codes and legal principles as well as competence in relational/systemic ethical decision-making skills.
4. Demonstrate competence in synthesizing and applying research to clinical practice and incorporating feedback measures to improve client outcomes.
5. Demonstrate ability to assess and monitor "self of the therapist" (including biopsychosocial/spiritual [BPSS] beliefs) with respect to clients and treatment process and its impact on clinical outcomes.

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### 18 HOURS HUMAN SCIENCES FOUNDATION

HMSC-5013 Systems Theory  
HMSC-5023 Family Trauma and Resilience  
HMSC-5033 Development and Diversity Across the Lifespan  
HMSC-5043 Sexuality and the Family  
HMSC-5053 Ethical and Legal Issues in the Human Sciences  
HMSC-5063 Research Methods in Human Sciences

### 31 HOURS MARRIAGE AND FAMILY THERAPY

MFTH-5013 Theoretical Models of the Family  
MFTH-5023 Basic Therapy Skills  
MFTH-5033 Family and Individual Assessment  
MFTH-5043 Psychopathology and Psychopharmacology  
MFTH-5053 Child and Adolescent Therapy  
MFTH-5063 Couples Treatment and Contemporary Issues in Marriage and Family Therapy  
MFTH-5713 Marriage and Family Therapy Practicum I  
MFTH-5723 Marriage and Family Therapy Practicum II  
MFTH-5733 Marriage and Family Therapy Practicum III  
MFTH-5794 Marriage and Family Therapy Capstone

### 6 HOUR THESIS OPTION

A 6 hours thesis option is available for the M.S.H.S. degree. An independent research track leading to the completion of a thesis project will require six additional hours to accommodate for your research time and consistent research advising meetings.

Take this course two times.

MFTH-5783 Master Thesis: Mentored Research

# M.S.H.S. DEGREE WITH AN EMPHASIS IN SYSTEMIC STUDIES

## 30 HOURS

A graduate with the M.S.H.S. degree with an emphasis in Marriage and Family Therapy will:

1. Demonstrate systemic/relational knowledge essential to practice of Marriage & Family Therapy.
2. Be culturally responsive in their work with people from diverse backgrounds, communities, and identities.
3. Demonstrate an understanding of relevant ethical codes and legal principles as well as competence in relational/systemic ethical decision-making skills.
4. Demonstrate competence in synthesizing and applying research to clinical practice and incorporating feedback measures to improve client outcomes.
5. Demonstrate ability to assess and monitor "self of the therapist" (including biopsychosocial/spiritual [BPSS] beliefs) with respect to clients and treatment process and its impact on clinical outcomes.

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### 18 HOURS HUMAN SCIENCES FOUNDATION

HMSC-5013 Systems Theory  
HMSC-5023 Family Trauma and Resilience  
HMSC-5033 Development and Diversity Across the Lifespan  
HMSC-5043 Sexuality and the Family  
HMSC-5053 Ethical and Legal Issues in the Human Sciences  
HMSC-5063 Research Methods in Human Sciences

### 12 HOURS MARRIAGE AND FAMILY THERAPY AND TRAUMA-INFORMED FAMILY SUPPORT

MFTH-5013 Theoretical Models of the Family  
MFTH-5023 Basic Therapy Skills  
MFTH-5033 Family and Individual Assessment  
MFTH-5043 Psychopathology and Psychopharmacology  
MFTH-5053 Child and Adolescent Therapy  
MFTH-5063 Couples Treatment and Contemporary Issues in Marriage and Family Therapy  
FMLE-5023 Parenting and Relationship Education

## GRADUATE HUMAN SCIENCES CERTIFICATES

### 9 HOURS TRAUMA-INFORMED FAMILY SUPPORT CERTIFICATE

HMSC-5023 Family Trauma and Resilience  
FMLE-5023 Parenting and Relationship Education  
MFTH-5023 Basic Therapy Skills

### 15 HOURS SYSTEMIC FAMILY THERAPY CERTIFICATE

HMSC-5013 Systems Theory  
MFTH-5013 Theoretical Models of the Family  
MFTH-5023 Basic Therapy Skills [if student is not a licensed therapist], OR  
MFTH-5053 Child and Adolescent Therapy  
MFTH-5063 Couples Treatment and Contemporary Issues in MFT  
MFTH-5743 Systemic Family Therapy In-Service

## COURSE DESCRIPTIONS

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While OC will attempt to offer every course when noted in the catalog, there will be times when a course may not be offered when noted in the catalog or when a course might be offered at a time other than when noted in the catalog. Students are advised to check each semester's course schedule and to confer with their advisors regarding particular courses. Students should also be aware that the last number of a course's number is equal to the total number of credit hours awarded for that course, with the exception of the variable courses.

### **ACCOUNTING (ACCT)**

#### **5003 ISSUES IN ADVANCED ACCOUNTING CONCEPTS**

Prerequisite: M.Acc. program acceptance. This course is a study of the application and theory of budgetary and fund accounting with emphasis on governmental and not for profit entities. Specialized accounting applications involving foreign operations' transactions, translation, and remeasurement are also examined. The concepts of the taxation of flow through entities are also explored.

#### **5103 ACCOUNTING ANALYTICS**

Prerequisite: BUSA-5033. This managerial accounting course will provide the skills to assist in evaluating issues related to a company's operating activities. The course will also focus on how managers can effectively use accounting information and analytical tools to improve performance.

#### **5113 ADVANCED TAX ACCOUNTING**

Prerequisite: ACCT-3413 or the equivalent. M.B.A. Accounting or M.Acc. program only or with chair approval. This course is a review of relevant tax topics. The areas of the taxation of individuals, corporations, partnerships, S corporations, property transactions, and gifts and estates will be covered. This course is normally offered in the summer.

#### **5123 ADVANCED AUDITING AND PROFESSIONAL ETHICS**

Prerequisite: ACCT-4413 or equivalent. M.B.A. Accounting or M.Acc. program only or with chair approval. This course studies advanced concepts, theories, and techniques applied to external financial, governmental, and internal audit engagements. Ethical issues in accounting are discussed. This course is normally offered in the summer.

#### **5133 ADVANCED FINANCIAL ACCOUNTING**

M.B.A. Accounting or M.Acc. program only or with chair approval. This course studies advanced concepts and techniques applied to consolidations theory and practice. Emphasis is on real-world applications of how information supports managerial decision-making. This course is normally offered in the summer.

#### **5143 TOPICS IN ACCOUNTING**

Prerequisite: For M.Acc. students only or with chair approval. This course studies a number of key topics in accounting that are covered in the uniform CPA examination. It examines government and not-for-profit accounting and reporting, information systems as they relate to the accounting function and the use of accounting information in strategic planning and operations management. This course is normally offered in the spring.

#### **5153 ACCOUNTING THEORY**

Prerequisite: For M.Acc. students only or with chair approval. This course studies the evolution of alternative theories of accounting, including recognition, valuation, and measurement considerations. It includes the historical development of accounting and the standard setting process in financial accounting, and how that history has impacted current practice. Other topics include the regulation of financial reporting; the postulates, principles and concepts of financial accounting; and the conceptual strengths and weaknesses of current standards are explored, along with research techniques that advance the profession of accounting. IFRS guidelines will be analyzed and examined. This course is normally offered in the fall.

#### **5163 ACCOUNTING RESEARCH AND QUANTITATIVE TECHNIQUES**

Prerequisite: For M.Acc. students only or with chair approval. This course will examine professional research in accounting. It will cover effective writing skills, the accounting research environment, accounting research tools, and international accounting research. Research tools and techniques will be applied to the financial reporting, tax, audit and forensic accounting topics. This course is normally offered in the summer.

#### **5803 SPECIAL TOPICS**

This course will cover current topics not normally included in existing courses. The course may be used as a pilot course which may be added later to the curriculum. Repeat credit on each course may be earned with different subtitles assigned to that course.

### **BUSINESS ADMINISTRATION (BUSA)**

#### **5010 GRADUATE SCHOOL OF BUSINESS (GSB) ORIENTATION**

This course is designed to help students succeed in their graduate business studies at Oklahoma Christian University. Topics include: the mission and philosophy of the Graduate School of Business, technological resources, academic research and writing, support services, and university policies and procedures

#### **5013 ECONOMIC AND QUANTITATIVE ANALYSIS**

Supply and demand, theory of the consumer, theory of the firm, market structures, free market resource allocation, government regulation, international trade. Applications of statistical concepts and information systems to business practices.

#### **5023 MARKETING AND THE LEGAL ENVIRONMENT**

Basic concepts and problems of marketing management in the US and foreign countries. Emphasis on application of principles and theory to the development of strategy. Examination of basic rules of law pertaining to marketing practices.

#### **5033 ACCOUNTING AND FINANCIAL RESOURCES**

A study of the principles, conventions, and concepts underlying internal and external reporting of accounting information by business organizations. Theory and techniques of financial management for business firms.

#### **5043 ORGANIZATIONAL AND OPERATIONS MANAGEMENT**

Management theory and practice. Analysis of the classical/functional, human relations, management science, and production/operations models of management. Applications of statistical concepts and information systems to business practices.

#### **5203 MANAGERIAL ECONOMICS**

Prerequisite: BUSA-5013. The course covers fundamental micro and macroeconomic concepts. Emphasis on understanding the major issues of U.S. and world economies and the application of economic concepts to management problems.

#### **5213 LEGAL AND REGULATORY ISSUES**

The course studies the legal environment within which a business must operate. Emphasis is on understanding legal issues and laws affecting business operations and decision making.

#### **5243 MANAGEMENT SCIENCE AND OPERATIONS**

The course examines the integration of human, technology, and material resources in the management of operations in service and manufacturing organizations. Examines the use of quantitative methods designed to equip the student to excel in the quantitative aspects of business decision making. This course is normally offered in the summer.

#### **5253 PROJECT AND TECHNOLOGY MANAGEMENT**

This course explores major problems, tasks, and techniques required to manage the technical program in each phase of the product life cycle. Emphasis is placed on organizational planning and development, decision making, and internal/external interface techniques. This course is normally offered in the summer.

## **5263 QUALITY ASSURANCE AND CONTROL**

This course discusses the fundamental concepts and methods of quality and productivity improvement. This course is normally offered in the summer.

## **5723 DATA DRIVEN DECISIONS**

This graduate-level course offers an in-depth exploration of advanced techniques in data analytics and visualization, equipping students with the skills needed to extract valuable insights from complex datasets and effectively communicate findings through compelling visualizations. Through a combination of theoretical learning and hands-on practical exercises, students will delve into various analytical methodologies, tools, and best practices essential for tackling real-world data challenges.

## **5803 SPECIAL TOPICS**

This course will cover current topics not normally included in existing courses. The course may be used as a pilot course which may be added later to the curriculum. Repeat credit on each course may be earned with different subtitles assigned to that course.

## **COMMUNICATION (COMM)**

### **5013 GLOBAL LEADERSHIP**

This course focuses on understanding leadership in a global context, providing both theoretical framework and practical advice for leading across cultural boundaries and addressing international challenges. The study and analysis of cultural impacts on successful leadership and various geographical areas. This class focuses on cultural theories and models that influence leadership across contexts.

### **5023 WOMEN AND LEADERSHIP**

This course reviews historical and contemporary challenges and opportunities related to women's leadership development. It examines the personal, social, and structural dynamics that differently affect women and men as leaders, particularly in terms of how they are viewed, how their contributions are evaluated, and what kind of opportunities are available to them. Topics addressed include how gender and leadership are constructed, the leadership styles of men and women, gender and leadership in the workplace, and how women succeed as leaders. A major focus of this course will include strategies for change and what has and can be done to improve the path of leadership for women. Students will also explore their own leadership attributes and develop an understanding of who they are as leaders. This course is offered as needed.

### **5033 MEDIATION AND RESTORATIVE JUSTICE**

Mediation and Restorative Justice is a course designed to teach basic six step mediation processes used by many of today's small claims and family courts across America. Additionally, principles and practices of social restoration are emphasized to prepare students for mediating disputes where physical or property harms have been committed.

### **5523 CONFLICT RESOLUTION AND PEACEMAKING**

In this course, learners discover the theory, research, practice, and Biblical principles of communication as it relates to understanding and negotiating interpersonal conflict. This course is offered every semester.

### **5633 INTERCULTURAL COMMUNICATION**

A survey of the basic concepts of how people communicate effectively across cultural boundaries, with special attention given to the complex nature culture plays in communication. This class fosters in students an understanding and appreciation of their own culture and cultural patterns of communication and those of other cultures. This course is normally offered every semester.

## **COMPUTER ENGINEERING (CENG)**

### **5013 HDL DESIGN OF MICROPROCESSORS**

Prerequisite: CENG-3203 Introduction to Microprocessors or equivalent. Design of modern integrated circuits with emphasis on design and development of custom digital circuits using Hardware Description Languages (HDL, e.g., VHDL/Verilog). Projects requiring both hardware and software architecture elements will be developed. A complete application-specific microprocessor will be designed, implemented, and

tested in the lab. Students cannot receive credit for both CENG-4303 and CENG-5013. 2-hour lecture, 3-hour lab.

### **5033 SOFTWARE SYSTEMS ENGINEERING**

Development of large, complex, software intensive systems requires expertise in Software Systems Engineering. System development ranges from user needs through deployment and maintenance of the system. Topics include system life cycles, processes, models, methods and tools for software systems development. This course is normally offered every semester.

### **5113 SOFTWARE AND NETWORK ENGINEERING**

Prerequisite: CENG-3113 Data Communications and Networking or equivalent. A study of advanced computer network systems design issues. Examination of the prominent protocols and standards for wired and wireless local area networks and the wireless Internet. Students cannot receive credit for both CENG-4123 and CENG-5113.

### **5213 NETWORK ENGINEERING**

An introductory look at computer network design and engineering topics with a focus on layer 2 -4 and 7 Internet protocols, including Ethernet, IP, TCP, and UDP, FTP, and HTTP. The course includes the use of network protocol analyzers to enable hands-on network protocol experience. Strong emphasis in wired and wireless network design with mathematical modeling, simulation, and trade-offs in protocols and hardware. Examination of commonly used protocols and standards. Students cannot receive credit for both CENG4213 and CENG-5213.

### **5223 EMBEDDED SYSTEMS DESIGN**

Prerequisite: CENG-3203 or equivalent. Embedded microcontroller system design using an integrated development environment (IDE). Starting with a set of specifications, starting with a self-contained finished microprocessor-based product will be designed and built. Topics will include controller selection, software development, layout of printed-circuit boards, and test/validation strategies. Lecture - 2 hours; Laboratory - 3 hours. This course is normally offered in the spring semester.

### **5233 ADVANCED COMPUTER ARCHITECTURE**

Computer organization and design. Fundamentals of computer design, instruction set architectures, instruction-level parallelism, pipelining principles, speculation, thread-level parallelism, memory hierarchies, cache principles, virtual memory, microprocessors, storage systems, clusters, historical perspectives. Students cannot receive credit for both CENG-4233 and CENG-5233.

### **5243 ADVANCED NETWORK ENGINEERING**

An application of the concepts learned in a first network engineering course with a focus on operational network concepts and protocols such as first hop redundancy protocols, dynamic routing protocols, network security, network troubleshooting, and network modeling. The course includes the use of network simulation and virtualization to enable hands-on network configuration and troubleshooting experience. Configuration of commonly used protocols and standards on simulated industry equipment. Hardening of network protocols and infrastructure layer 2 and layer 3 devices.

## **COMPUTER SCIENCE (CMSC)**

### **5003 FOUNDATIONS OF TECHNOLOGY ETHICS AND VALUES**

Theories of engineering and computer science ethics and values. Ethical theory from a Christian viewpoint. Impact of technology on society. Individual options and obligations for action. Case studies will be used to study a range of issues including environment, safety, honesty, organizational communication, quality control, and product liability. Same as ENGR-5003. This course is normally offered every semester.

### **5133 INTRODUCTION TO PARALLEL PROGRAMMING**

This course is an introductory course in parallel programming for upper-division undergraduate and graduate students who have already learned to program in C, C++, Java, or C#. The goal of the course will be to equip computer science students to be able to program multi core computers and parallel processors generally for scientific, engineering, and business applications. This course is normally offered

every fall and spring semester.

### **5223 COMPUTER SIMULATION**

An introduction to the application of programming to the design and implementation of computer simulations. Topics include simulation languages and the application of stochastic processes to simulation theory. This course is normally offered in the spring semester of even numbered years. Students cannot receive credit for both CMSC-4223 and CMSC-5223.

### **5233 MOBILE APPLICATION DEVELOPMENT**

An introduction to mobile application software development. In this course, the student will learn to develop mobile apps. Topics will include mobile platforms and mobile application development tools. This course is normally offered in the spring semester of even numbered years. Students cannot receive credit for both CMSC-4233 and CMSC-5233. This class is normally offered in the spring semester.

### **5253 THEORY OF COMPUTING**

An introduction to the theory of computation. Topics include languages, finite state automata, context free grammars, Turing machines, complexity classes, P vs NP, quantum complexity, and the arithmetic hierarchy. Recommended for students pursuing a further graduate study. This course is normally offered as needed.

### **5313 HUMAN COMPUTER INTERACTION**

An introduction to user interface design and user experience. Topics include HCI concepts and principles, usability, HCI evaluation, HCI design, interaction devices. This course is normally offered in the fall semester of odd numbered years. Students cannot receive credit for both CMSC-4113 and CMSC-5313. This course is normally offered in the fall and spring semesters.

### **5333 ADVANCED DATABASE SYSTEMS**

Prerequisite: CMSC-4323 or 5323. This course will investigate new database technologies. Topics will include managing and using large skill data sets, high-velocity transaction processing, stream processing, real time analytics, and high-volume data processing. The discussions will focus on several real-world application domains, such as internet advertising, healthcare, and social network analysis. This course is normally offered every semester.

### **5343 ALGORITHM ANALYSIS**

An introduction to the analysis and design of algorithms. Topics include algorithm performance, verification of correctness, and application of analysis technique to a variety of simple and complex algorithms. This course is normally offered every semester.

### **5353 BIG DATA MANAGEMENT**

Prerequisite: CMSC-5333. A course on the practical implementation of big data technology. Students will learn to use Hadoop and other projects in the Hadoop ecosystem to effectively manage big data tasks, as well as delivering results to human observers. Topics include data processing, data visualization, and distributed data processing. This course is normally offered in the spring semester.

### **5363 DATA SCIENCE PROJECT I**

Prerequisite: CMSC-5723. A project-oriented class where the student will use data science principles, knowledge and skills to solve a problem as a team. Topics include Hadoop and related technologies, and data science processes. This course is normally offered in the summer semester.

### **5373 DATA SCIENCE PROJECT II**

Prerequisite or Corequisite: CMSC-5363. A project-oriented class where the student will use data science principles, knowledge and skills to solve a problem on their own. Topics include Hadoop and related technologies, and data science processes. This course is normally offered in the summer semester.

### **5383 ROBOTICS AND IOT**

An introduction to the integration of AI and data collection and control software into physical devices. Topics include sensors, data collection, planning, robotics and IOT. Students will learn how to use the integration of software into physical devices to solve problems. Students cannot receive credit for both CMSC-4383 and CMSC-5383.

This course is normally offered in the fall semester.

### **5423 COMPUTER GRAPHICS**

An introduction to the fundamental techniques of computer graphics. Topics include two and three-dimensional graphing, hidden surface algorithms, animation, and applications of graphics. This course is normally offered in the fall semester of odd numbered years. Students cannot receive credit for both CMSC-4423 and CMSC-5423.

### **5433 COMPILER CONSTRUCTION**

An introduction to compiler construction. Topics will include lexical analysis, syntax analysis, intermediate code generation, runtime environments, code generation, and optimization.

### **5523 CRYPTOGRAPHY**

This course covers foundations and practical applications of modern cryptography. Ideas about defining security, hardness assumptions, and the possibility of proving security of complicated constructions based on low-level primitives will all be explored. Topics include: principles of modern cryptography, classical encryption schemes, private-key encryption, message authentication, hash functions, public-key encryption, and digital signatures. By the end of the course, the student will have a firm grasp of cryptographic primitives in wide use today and a knowledge of how to combine these in order to develop modern protocols for secure communication. Students cannot receive credit for both CMSC-4443 and CMSC-5523. This course is normally offered in the fall semester.

### **5533 SOFTWARE SYSTEM ARCHITECTURE**

Prerequisite: CMSC-5613. Software System Architecture teaches the principles and concepts involved in the analysis and design of architecting large software systems. This includes how to create an architecture that meets the specific requirements of a software system using modern software components. This course is normally offered in the fall and spring semesters.

### **5613 OBJECT ORIENTED SOFTWARE ENGINEERING**

An introduction to software engineering using object-oriented concepts for the software development life cycle. This course will cover the software development life cycle activities of requirements, design, development, and testing. The course will introduce UML (Unified Modeling Language) as a way to document requirements and designs. The course will prepare students to gather requirements, create designs and document them both. Some knowledge of an object-oriented programming language is recommended. This course is normally offered in the fall and spring semesters.

### **5623 SOFTWARE ENGINEERING FOR TRUSTWORTHY SOFTWARE**

This course explores the technologies and methodologies underlying a new robust software design model (RSDM) for software development based on successful methods used in hardware design and development. These include cost of software quality (CoSQ), the analytical hierarchy process (AHP), inventive problem solving (TRIZ), failure mode effects analysis (FMEA), quality function deployment (QFD), and Taguchi Methods, including orthogonal matrix methods. The overall design approach is to eliminate software problems as far upstream in the development process as possible, rather than finding and fixing bugs downstream. The course is intended for the software architect or software engineer or the programmer or student wishing to progress into software design.

### **5633 PATTERNS OF OBJECT-ORIENTED SYSTEMS**

Prerequisite: CMSC-5613. This course will investigate the use of patterns in object-oriented software development. Topics include analysis patterns, design patterns, and enterprise system patterns. This course is normally offered in the fall and spring semesters.

### **5643 NETWORK SECURITY**

Prerequisites: CENG-5213. This course focuses on the concepts, terminology and practice of network security. Topics include the fundamental goals of network security and practical applications of wired and wireless network security techniques such as applications of cryptography in network protocols, authentication, access control, network security devices such as firewalls and intrusion detection and prevention systems, incident response, log analysis, honeypots and honeynets. This course prepares students for the CompTIA Network+ and Security+ certification exams. Students are

required to research and present an APAP format research paper. Laboratory 2 hours. This course is normally offered in the fall and spring semesters.

### **5653 CLOUD ARCHITECTURE AND SECURITY**

Prerequisite: CMSC-4643 or CMSC-5643. This course covers cloud computing architecture and cloud security concepts including access control and management, governance, logging, and encryption methods. It also covers security-related compliance protocols and risk management strategies, as well as procedures related to auditing cloud security infrastructure. Students will have hands-on experience designing solutions for AWS cloud-based platforms and operations that maintain data availability while protecting the confidentiality and integrity of information. This includes security controls, disaster recovery plans, and continuity management plans that address physical, logical, and human factors. This course prepares students for the CompTIA Security+ certification exam. Students are required to research and present an APA format research paper. Laboratory 2 hours. This course is normally offered in the fall and spring semesters.

### **5663 NETWORK FORENSICS**

Prerequisite: CMSC-4643 or CMSC-5643. Introduces digital forensic concepts and practices on local area networks, wide area networks and large-scale networks such as the Internet. Lectures include topics such as investigative techniques, and how to conduct a cyber investigation, manage chain-of-evidence and follow a cyber-trail. A large part of the course involves demonstrations and hands-on labs, including: use of network forensic tools such as packet monitors, security information and event managers (SIEMs), tracers, and other tools useful for analyzing events. Many of the labs involve analysis of packet captures of both actual attacks and theoretical malfeasance by offenders. Students have a final lab exercise instead of a final exam, and are required to research and present an APA format research paper. Laboratory 2 hours. This course is normally offered in the spring semester.

### **5673 COMPUTER SYSTEMS RISK MANAGEMENT**

This course applies the NIST Risk Management Framework (RMF) as students complete project deliverables and communicate project results, integrating Enterprise and Cloud System risk management principles and standards. Students will develop in-depth analytic competencies to relevant risk problems. Students are to research and present a Computer Risk Report instead of a final exam. This course is normally offered in the summer semester.

### **5683 OFFENSIVE SECURITY AND PENETRATION TESTING**

Prerequisite: CMSC-5643. This course prepares students to conduct successful offensive security, penetration testing, and ethical hacking projects. The course covers proper planning, scoping and reconnaissance, and then dives deep into scanning, target exploitation, password attacks, and wireless and Web applications with detailed hands-on exercises. Students will participate in an intensive, hands-on Capture the Flag exercise, conducting a penetration test against a sample target organization. This course prepares students for the professional CompTIA PenTest+ Security certification exam. Laboratory 2 hours. This course is normally offered in the summer semester.

### **5713 ARTIFICIAL INTELLIGENCE**

An introduction to the study of artificial intelligence. Topics include problem solving using state-space and problem reduction techniques, search methods, game playing, and predicate calculus. Students will learn how to solve problems with AI. Students cannot receive credit for both CMSC-4713 and CMSC-5713. This course is normally offered in the fall and spring semesters.

### **5723 MACHINE LEARNING**

An introduction to the study of machine learning. Topics include classification, neural networks, genetic algorithms, reinforcement learning, unsupervised learning and deep learning. Students will learn how to use machine learning to solve problems. Students cannot receive credit for both CMSC-4723 and CMSC-5723. This course is normally offered in the fall and spring semesters.

### **5733 SOFTWARE ENGINEERING PROJECT I**

Prerequisite CMSC-5613. A project oriented class where the student will build software systems using software engineering processes. Topics include software tools, software teams, software engineering practices, software engineering design artifacts, software development, and testing. This course is normally offered in the summer semester.

### **5743 SOFTWARE ENGINEERING PROJECT II**

Prerequisite or Corequisite: CMSC-5733. A project-oriented class where the student will build a software system on their own using software engineering processes. Topics include software tools, software teams, and software engineering. This course is normally offered in the summer semester.

### **5753 INTELLIGENT SYSTEMS**

Prerequisite: CMSC-2233. A course in the use of artificial intelligence to solve problems. Students will learn how to make use of machine reasoning and search to complete tasks from basic spatial reasoning to game playing. Topics include logic programming, intelligent search, and reasoning with uncertainty. This course is normally offered in the fall semester.

### **5763 ARTIFICIAL INTELLIGENCE PROJECT I**

Prerequisite: CMSC-5723. A project-oriented class where the student will use artificial intelligence principles, knowledge, skills, and technologies to solve a problem as a team. Topics include machine learning and related technologies, artificial intelligence and software development processes. This course is normally offered in the summer semester.

### **5773 ARTIFICIAL INTELLIGENCE PROJECT II**

Prerequisite or Corequisite: CMSC-5763. A project-oriented class where the student will use artificial intelligence principles, knowledge, skills, and technologies to solve a problem on their own. Topics include machine learning and related technologies, artificial intelligence and software development processes. This course is normally offered in the summer semester.

### **5783 LARGE LANGUAGE MODELS**

Prerequisites: CMSC-4723 or CMSC-5723. An introduction to the study of Large Language Models (LLMs) and their applications. Students will learn the basics of how LLMs work and how to use them effectively in real-world applications. Students cannot receive credit for both CMSC-4783 and CMSC-5783. This course is normally offered in the spring semester.

### **5901 PRACTICUM FOR COMPUTER SCIENCE**

On-the-job experience is a valuable way for students majoring in computer science to practice and improve their skills. Working with real world problems enhances the theoretical curriculum we offer and gives students a new perspective on concepts they have been taught. Enrollment in this course will be under the supervision of an individual computer science professor, who will work with the student's supervisor. A journal or summary paper of the internship experience will be required at the conclusion of the employment period. A 12-week practicum at 20 hours per week will correspond to one hour of credit. Prior permission of the computer science department is necessary for enrollment.

## **EDUCATION (EDUC)**

### **5003 FOUNDATIONS OF INSTRUCTION**

Effective teachers know what to teach and how to teach it given the students in their classroom. The "what" is grounded in content standards, curriculum, and student work. Content standards define what students should know and be able to do at a given grade level; they are built upon linear and cyclical progressions of knowledge and skill. Curriculum transforms standards into work for students to engage with. This course ensures teachers understand their standards, can analyze the quality of their given curriculum against those standards, and can meaningfully analyze student work to inform their instructional content choices.

### **5013 PROGRAM PLANNING AND EVALUATION**

Program Planning presents an overview of the process for designing, presenting and evaluating programs in a variety of fields. This course provides instruction and practice designing and implementing high quality programs. This essential skills learning is for OC students to build skills in the areas of program development, evaluation, and impact reporting. The course includes training on active learning, practical application, and practice in developing evaluation tools to measure program impact.

### **5023 DIVERSITY AND INCLUSION**

Introduces learners to relevant literature and practices of diversity and inclusion within

educational settings. Includes examination of the learner's own social location.

### **5033 LEARNING THROUGH TECHNOLOGY**

This seven-week online course explores blended learning from the perspectives of theory and practice and is designed for educators and instructional designers in all educational environments (e.g. K-12, higher education, corporate environments, non-profit organizations). It focuses on the application of theory and research to pedagogy and curriculum design to achieve a synergy between technology and classroom environments. Topics include theoretical frameworks and best practices in blended learning, institutional perspectives and assessment, and the design and implementation of a blended curriculum.

### **5043 FOUNDATIONS OF LEARNING RECOVERY**

This course focuses on providing just-in-time support so that students can engage in on-grade-level work. It supports participants in intentional planning to identify key prerequisite skills and knowledge, implementation of routine structures that maximize efficiency during instructional time, and the strategic connection of student data to the prerequisite skills planning and classroom routines and structures, so that students receive the necessary academic support for success.

### **5053 FOUNDATIONS OF STUDENT CENTERED LEARNING**

Student Centered Learning is a phrase often used within education but definitions may vary across sources and context. In this course, participants learn strategies to actively engage students in their own learning, ensuring that students do the "heavy lifting." This course focuses on foundational engagement pedagogy, discussions, collaborative learning structures, and feedback for growth.

### **5063 FOUNDATIONS OF ADDRESSING STUDENT WELL-BEING**

In addition to academic needs, educators serve a vital role in acknowledging and supporting students' well-being, including, physical (e.g., health, nutrition), social, and mental health needs. This course helps educators attend to student well-being by requiring them to establish personal, positive relationships with individual students and leverage school, school system, and community support to assess and address individual student needs.

### **5073 FOUNDATIONS OF CLASSROOM CULTURE**

Educators focused on developing a fair and respectful classroom environment expect and support every student to succeed within the school environment and beyond, with explicit attention to how a student's individual circumstances may influence the types and level of support needed. This course helps educators develop a foundation of respect and rapport in their classroom among their students, assess their current classroom culture for fairness around four key domains: curriculum, instructional practices, relationships, and disciplinary practices; and use an inquiry-based approach to understand a student's strengths and needs in order to help them realize their full potential.

### **5083 FOUNDATIONS OF TEACHER LEADERSHIP**

As teachers gain experience and grow in effectiveness, many will seek out or be sought out for leadership roles. They may continue to teach students but also have an influence that extends beyond their own classrooms or they may go into instructional leadership, school leadership, or system leadership positions. No matter the path, the foundational leadership skills focused on in this course are critical to expanding the educator's impact and reach.

### **5093 POLICIES, PROCEDURES, AND SYSTEMS FOR STUDENTS WITH DISABILITIES**

Federal laws and policies are designed to protect the rights of students with disabilities and promote student success. When a student needs additional support, effective teachers understand how to build a compelling case for change, leverage systems and structures to support the change, and build self-advocacy skills of all learners. Research shows that students with disabilities are fully capable of making progress towards grade-level standards, when provided with the right support. This course supports educators to communicate and advocate for students, leveraging laws and policies to attend to their needs.

### **5103 INTERVENTION, IDENTIFICATION, AND CORE CONTENT FOR STUDENTS WITH DISABILITIES**

This course moves students from the fundamentals of supporting students with disabilities to include the content specific supports. Educators explore intensive

interventions, seek school-level and family support, and understand when to refer a student for a special education evaluation. They integrate special education support into a flexible inquiry cycle during core ELA instruction to ensure that every student can express their understanding of complex, grade-level content. To ensure all students access and progress in grade-level math/science learning, teachers need to integrate the evidence base and special education supports in math to tailor their instructional approaches to meet individual student needs.

### **5113 CLASSROOM ROUTINES AND SUPPORTS FOR STUDENTS WITH DISABILITIES**

This course requires educators to deploy additional strategies to support students with disabilities such as evidence-based behavior interventions, strong co-teaching models and leveraging small groups for academic support.

### **5123 POLICIES, PROCEDURES, AND SYSTEMS FOR ENGLISH LEARNERS**

The English learner population is growing across the nation yet far too few teachers are equipped with the knowledge and skill to support this population of students. This course focuses on the foundational laws, policies, and practices that allow teachers to begin to positively impact English learners in their class and school.

### **5133 UPHOLDING RIGOR IN CORE CONTENT FOR ENGLISH LEARNERS**

English learners have the complicated responsibility of learning a new language while also progressing in their mastery of grade-level content. This can't often be accomplished without the core classroom teacher understanding the stages of language acquisition and providing content-related support. This course provides learning and implementation opportunities for educators to strategically connect understanding of the stages of language acquisition, student observation, and assessment data to core ELA and math instruction.

### **5143 ENSURING A CULTURE FOR SUCCESS FOR ENGLISH LEARNERS**

This course requires educators to deploy advanced strategies to support students who are English learners such as supporting student voice, school culture analysis, and advanced advocacy for improvements.

### **5153 COMPUTING AND SOCIETY**

While today's children and teens are digital natives, a digital divide remains because many students lack sufficient access to both technology and media mentors. This course focuses on the fundamental concepts that lead to computer science readiness: digital citizenship, inclusive computing cultures, and analyzing the positive and negative impacts of computing on society.

### **5163 COMPUTATIONAL THINKING**

This course moves students from the fundamentals of computer science to the more concrete skills needed to succeed in computer science, including computational thinking, recognizing computational problems, working with data, and creating computational artifacts.

### **5173 COMPUTING SYSTEMS AND BASIC PROGRAMMING**

This course addresses computing system components, including hardware, software, networks, and the internet, as well as beginner programming tools and technologies to support students in the digital age.

### **5213 ESTABLISHING SOCIAL EMOTIONAL LEARNING PRACTICES**

Implementing strong social emotional learning instruction establishes equitable learning environments and coordinates practices across key settings of classrooms, schools, families, and communities to enhance all students' social, emotional, and academic learning. Social-emotional learning (SEL) builds students' social and emotional skills, which are the abilities, behaviors, and attitudes students and adults need to effectively manage their affective, cognitive, and social behavior. They help students understand and manage their emotions, strengthen their self-esteem, and build positive and productive relationships with others. This course focuses on the following fundamental Social Emotional Learning concepts such as elevating SEL in the school setting, promoting student self-management, and promoting student self-awareness.

### **5223 EXPANDING SOCIAL EMOTIONAL LEARNING PRACTICES**

This course takes the concepts introduced in SEL 1 and builds upon them to focus on student self-management and emotional regulation, critical thinking and decision

making, and developing connections and student relationships.

### **5233 SUSTAINING AND EVALUATING SOCIAL EMOTIONAL LEARNING PRACTICES**

This course continues the focus on developing student relationship and collaboration skills that began in SEL 2. In addition, educators learn to assess the level and effectiveness of SEL implementation in their schools.

### **5243 FOUNDATIONS OF COMPUTER SCIENCE INSTRUCTION**

Effective teachers know what to teach and how to teach it given the students in their classroom. The “what” is grounded in content standards, curriculum, and student work. Content standards define what students should know and be able to do at a given grade level; they are built upon linear and cyclical progressions of knowledge and skill. Curriculum transforms standards into work for students to engage with. This course ensures teachers understand their standards, can analyze the quality of their given curriculum against those standards, and can leverage effective instructional practices rooted in the science of learning.

### **5253 INTEGRATING COMPUTER SCIENCE PRACTICES**

This course moves students from the fundamentals of computer science to the more concrete skills needed to succeed in computer science, including computational thinking, recognizing computational problems, working with data, and creating computational artifacts.

### **5263 CYBERSECURITY**

Computer science educators are responsible for not only instructing essential technology concepts and skills, but they also have a civic duty to address with students the fundamental issues in cyber literacy and cybersecurity. When students transition from the world of academia to corporate life, they are expected to know how to consume, create, and preserve information responsibly. This course focuses on cyber literacy, cybersecurity, and the ethical practices of the cyber world.

### **5273 PEDAGOGICAL PRACTICES THAT SUPPORT COMPUTER SCIENCE LEARNING I**

Mindful pedagogy can improve instructional quality resulting in greater student advancement. Responsive teachers continuously reflect on student learning objectives, monitor and analyze student progress, and encourage student growth mindsets. This course focuses on effective teaching practices through active observation, formative assessment, and actionable feedback.

### **5283 PEDAGOGICAL PRACTICES THAT SUPPORT COMPUTER SCIENCE LEARNING II**

Cognitive science has sculpted pedagogical practices to offer more learner-centered experiences where students can take a more active role in their own learning. Collaborative and inquiry-based learning opportunities cultivate interactive learning experiences patterned in a constructivist learning theory. This course provides teachers with deliberate practices to support learner-centered instruction.

### **5293 PROMOTING INCLUSIVE PRACTICES IN COMPUTER SCIENCE**

Equity-minded educators expect and support every student to succeed within the school environment and beyond, with explicit attention to how personal and structural circumstances may influence the types and level of support needed. Understanding structural circumstances requires examining the interplay between three levels of discrimination: individual (interpersonal), institutional, and systemic. This course helps educators deepen their equity mindset and assess their current classroom for key practices of equity in computer science instruction.

### **5333 CLASSROOM MANAGEMENT**

Candidates will enhance their knowledge and skills in behavior management theories based on discipline models that reflect current research. Candidates will make connections between effective classroom management and positive classroom climates.

### **5343 EDUCATIONAL PEDAGOGY**

This course relates contemporary theories of learning to instruction. The course develops skills in planning, instruction, and assessment. It also concentrates on developing instructional strategies based on the state standards. This course is offered only to non-degree seeking students who are admitted into the Academy of Alternative Certification and is not intended for the undergraduate students in the School of Education.

### **5353 SOCIAL STUDIES METHODS I**

This course is focused on using the inquiry arc in social studies, source analysis, and argumentation. It prepares participants to effectively develop and implement high-quality social studies curriculum.

### **5373 SCIENCE METHODS I**

This course builds on Introductory Disciplinary Methods, providing deeper learning on the topics of three-dimensional science instruction, phenomenon-based instruction, and formative assessment in science. It prepares participants to effectively implement high-quality science curriculum.

### **5383 SCIENCE METHODS II**

This course builds on Science Methods I, providing deeper learning on the topics of science and engineering practices, scientific discourse, and supporting students. It prepares participants to effectively implement and adjust high-quality science curriculum.

### **5403 EDUCATIONAL INNOVATION**

This course is designed to help you develop an entrepreneurial mindset. Everyone has a mindset. Your mindset consists of your values, assumptions, and knowledge. You use your mindset to process information, inform decisions, and guide behavior. People with an entrepreneurial mindset, for example, see challenges as opportunities. They are able to identify new ways of solving problems and making a positive social impact. Educational entrepreneurs do this through the lens of education.

### **5423 STUDENT SUPPORT**

Each student brings a unique set of background knowledge, skills, and strengths to a classroom. This course is focused on ensuring all students are successful, even those who may have different needs than their peers. Participants learn how to navigate structures within their schools to co-plan with other teachers, scaffold complex tasks, and use flexible grouping to ensure all students have the support they need to meet content objectives.

### **5433 SCIENCE OF READING**

Reading is a complex cognitive process. Reading requires both the ability to decode the words on the page and the ability to make sense of those words. Word recognition must take place automatically and language comprehension skills must be applied strategically to enable skilled reading. The National Reading Panel comprehensively reviewed research findings to identify five components of effective reading instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension. This course is focused on developing an understanding of the components of effective literacy instruction as well as the classroom practices that support them. It is designed to be completed over the summer and does not require access to students.

### **5443 RELATIONSHIPS**

This course builds on previous learning about establishing relationships but focuses on how to strengthen relationships with students and their families as the school year progresses. In this course, participants engage in two-way communication with families, leverage meaningful interactions to connect with students on a deeper level, and provide additional support to a student that has proven more challenging to reach.

### **5453 ESSENTIALS OF ASSESSMENT**

Assessments are “the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students” (Great Schools Partnership, 2015, para. 1). Educators rely on assessments to provide the evidence of student learning. This course teaches participants how to purposefully choose assessment methods; scrutinize and, if necessary, improve the quality of tests before administering them; and use results to inform instruction.

### **5463 EDUCATION AS AN INSTITUTION**

This course supports participants in developing a thoughtful philosophy of education through the exploration of the history of education in the United States, as well as current systemic issues. This course is designed to be completed over the summer and does not require access to students.

### **5473 ESSENTIALS OF CLASSROOM CULTURE**

This course provides foundational learning related to establishing a positive classroom culture at the beginning of a school year or teacher-class relationship. Unit topics include initiating positive relationships, establishing norms, and creating routines. It is recommended that participants complete the learning activities from this course prior to the first day of class, but completion of the portfolio of evidence requires students.

### **5483 MATH I: ANALYZING AND APPLYING MATH STANDARDS**

This three-credit course requires students to be an active participant in a combination of on-line and synchronous learning processes. Participants self-pace through learning activities and portfolio development alongside a learning coach and within structured learning cohort events. The learning activities build upon key concepts with research, case studies, and other examples. Synchronous learning events can be personalized per student and cohort needs but include structured collaborative discussions and assignments around the learning activities, portfolio creation, and platform navigation. Participants demonstrate their knowledge, skill, and competence through the submission of a structured portfolio.

### **5493 MATH II: SUPPORTING MATHEMATICAL PROFICIENCIES**

This course builds on Math 1, providing deeper learning on the topics of assessment, mathematically productive discussions, and analysis of student work. It prepares participants to effectively implement high-quality math curriculum.

### **5503 MATH III: ENSURING MATHEMATICAL PROGRESS THROUGH ASSESSMENT AND INTERVENTION**

This course builds on Math 1 and 2 focusing on effective provision of support to ensure all students can access grade-level curriculum. The first unit explains how to use formative assessment to monitor and respond to student learning, the second unit addresses how to accelerate students with unfinished learning, and the final unit asks participants to audit and improve their math support and intervention practices.

### **5513 DISCIPLINARY METHODS I**

This course provides an introduction to disciplinary methods, including research-based approaches to science, social studies, and digital literacy instruction. The units explain the theory behind recent shifts in each content area and then require participants to locate evidence of those shifts in instructional plans (science and social studies) or apply best practices in a lesson (technology integration).

### **5523 SPECIAL POPULATIONS**

In this course, participants learn about special populations of students, including students with disabilities, English Learners, and gifted students. Each unit in the course is structured in the same way to provide 1) an overview of relevant laws and policies, 2) characteristics of identified students, and 3) methods for supporting those students. This course is designed to be completed over the summer and does not require access to students.

### **5533 PSYCHOLOGY OF EDUCATION**

This course provides an overview of the history of pedagogical theory with a focus on the last decade of advances in cognitive psychology. Participants reflect on how these findings can be practically applied in the classroom, while also recognizing the aspects of teaching and learning that are still not fully understood. Due to its heavy focus on theory, this course can be completed over the summer and does not require access to students.

### **5543 INSTRUCTIONAL DELIVERY**

This course is focused on the process of delivering content instruction. Participants learn how to unpack learning targets with students, how to frame, convey, and stamp content instruction, and how to respond to classroom challenges that disrupt instructional time.

### **5553 ESSENTIALS OF STUDENT-CENTERED LEARNING**

While "student-centered learning" can be used to describe a variety of instructional approaches, for this program of study, it is defined as educational practices that motivate students to be actively engaged in their own learning and require students to perform the majority of the cognitive lifting. This course focuses specifically on inclusive discussions, collaborative learning structures, and student agency.

### **5563 INTERNALIZING CURRICULUM**

This course is intended as an introduction to planning from a provided, high-quality curriculum and is focused primarily on English language arts and math. Participants prepare for the school year by internalizing curriculum at the year, unit, and lesson levels. This course can be completed prior to the start of the school year but does require access to the school's instructional materials

### **5573 SOCIAL STUDIES METHODS II**

This course builds on Social Studies Methods I, providing deeper learning on the topics of preparing students for civic life, planning at year level, and supporting students in reading and writing.

### **5583 ELA I: FUNDAMENTALS OF ELA INSTRUCTION**

A 2005 analysis of scores on the ACT revealed that "only 51 percent of ACT tested high school graduates met ACT's College Readiness Benchmark for Reading, demonstrating their readiness to handle the reading requirements for typical credit-bearing first-year college coursework" (ACT, 2006). This number was even lower for male students, African American students, Hispanic American students, Native American students, and students from families whose yearly income is below \$30,000. In response to this analysis and other indicators that students lacked the reading skill necessary for college and careers, national attention focused on how to increase rigor within English language arts (ELA) classes. The college and career readiness standards that emerged reflect three important shifts: increasing text complexity; grounding reading, writing, and speaking in evidence from texts; and building knowledge through content-rich nonfiction. This introductory methods course is focused on the theory behind these shifts, as well as how to implement them in an ELA classroom.

### **5593 ELA II: EFFECTIVE ELA INSTRUCTION**

This course builds on EDUC-5583 ELA I, providing deeper learning on the topics of planning, speaking and writing instruction, and assessment. It prepares participants to effectively implement high-quality ELA curriculum.

### **5603 FOUNDATIONS OF SUPPORTING ENGLISH LEARNERS**

This course focuses on the foundational laws, policies, and practices that allow teachers to begin to positively impact English Learners in their classes and schools. Educators research the characteristics of and diversity within the English Learner population and communicate information about cultural and linguistic diversity in their school contexts to colleagues. Educators then communicate foundational laws and policies to colleagues and develop resources for families of English Learners to better understand these policies. Finally, educators reflect on the impact of identity and biases on teaching and develop an understanding of the lived experiences of students and families to deliver culturally responsive instruction.

### **5613 PRINCIPLES OF ENGLISH LANGUAGE ACQUISITION**

English Learners have the complicated responsibility of learning a new language while also progressing in their mastery of grade-level content. This often cannot be accomplished without the core classroom teacher understanding the stages of language acquisition and providing context-related support. This course provides learning and implementation opportunities for educators to strategically connect an understanding of the stages of language acquisition, student observation, and assessment data to core ELA and math instruction. Micro-credential topics include Incorporating Linguistic Analysis into Teaching English, Recognizing the Stages of Second Language Acquisition, and Supporting Academic Language Development.

### **5623 EFFECTIVE PRACTICES FOR TEACHING ENGLISH LEARNERS I**

This course provides a theoretical and practical knowledge base in linguistics for teachers of English Learners, including linguistic analysis, theories of second language acquisition, assessment of English language proficiency, and support of academic language. Educators identify the linguistic features of Standard American English, analyze how similarities and differences between English and home languages impact students' English language development, and use this knowledge to build students' metalinguistic awareness. Next, educators develop linguistic awareness and apply theories of second language acquisition to support accurate observation of language skills, analyzing student language samples to identify English Language Proficiency (ELP) levels. Educators then determine content and academic language objectives for learning, explicitly teaching academic language and affording students regular opportunities to apply academic language and receive feedback on the use of language.

### **5633 EFFECTIVE PRACTICES FOR TEACHING ENGLISH LEARNERS II**

This course requires educators to deploy advanced strategies to support English Learners through student discourse by promoting student interaction and cooperative learning, facilitating inclusive discussions, and leveraging classroom conversation. Educators identify opportunities for interaction within a lesson and strategically group students to support and monitor language and affective needs. Educators then establish an environment that promotes productive and inclusive discussions, with opportunities for varied engagement, and evaluate the effectiveness of discussions against planned outcomes. Educators also use wait time, open-ended prompts, and careful listening to elicit evidence of student understanding and language ability in order to stretch English Learners' language skills through prompting, providing language models, and responding to meaning.

### **5643 EFFECTIVE PRACTICES FOR TEACHING ENGLISH LEARNERS III**

This course requires educators to deploy advanced strategies to support English Learners, such as promoting literacy development, evaluating intervention approaches, and researching and implementing appropriate supports for individual students. Educators apply knowledge of the science of reading and develop an understanding of how literacy instruction for English Learners compares to literacy instruction for all students. Educators then plan and implement instruction that supports students in acquiring English literacy skills. Educators then articulate the issues related to intervention for English Learners, evaluate current intervention practices, and make recommendations to improve interventions for English Learners. Educators also research the needs of special populations of English Learners, such as newcomers, students with limited or interrupted formal schooling, and gifted and talented English Learners, and implement appropriate supports for individual students.

### **5653 PROFESSIONALISM IN A CULTURALLY AND LINGUISTICALLY DIVERSE ENVIRONMENT**

In this course, participants build the professional skills needed to collaborate with families and colleagues in order to effectively advocate for English Learners. Participants gather information about the needs, strengths, and preferences of families, and they use this knowledge to communicate in ways that meet the needs of culturally and linguistically diverse families. Participants also create opportunities for asset-based collaboration with families and colleagues and seek feedback on their professionalism. The course culminates with an opportunity for educators to advocate for an English Learner by collecting and analyzing data, identifying resources and proactive support strategies, and executing and reflecting on their advocacy plan.

### **5663 ELA III: SUPPORTING STUDENTS IN ELA INSTRUCTION**

This course builds on ELA II with a focus on supporting students. It provides learning on how to leverage formative assessment, scaffold writing, and follow best practices for intensive reading intervention. It prepares participants to effectively implement high-quality ELA curriculum.

### **5673 EARLY LITERACY I: PHONICS & WORD STUDY**

Reading is a complex cognitive process. Reading requires both the ability to decode the words on the page and the ability to make sense of those words. Word recognition must take place automatically and language comprehension skills must be applied strategically to enable skilled reading. The National Reading Panel comprehensively reviewed research findings to identify five components of effective reading instruction: phonemic awareness, phonics, fluency, vocabulary, and comprehension. In this course, you will develop an understanding of the components of effective literacy instruction as well as the instructional best practices that support early elementary literacy instruction.

### **5683 EARLY LITERACY II: FLUENCY AND COMPREHENSION**

Reading fluency and vocabulary development explicitly impact reading comprehension. Children with high reading fluency rates tend to read more and remember more of what they read because they are able to expend less cognitive energy on decoding individual words and integrating new information from texts into their knowledge banks. In this course, you will develop an understanding of the instructional best practices that support early elementary literacy instruction in the areas of fluency, vocabulary and comprehension.

### **5693 EARLY LITERACY III: WRITING**

Writing with children provides numerous opportunities to develop their emergent literacy capacities. This includes making meaning and expressing ideas in texts; developing fine motor skills, concepts of print, phonological awareness, and phonics skills; and creating and exploring texts. This course develops an understanding of the instructional best practices that support writing instruction in the early literacy classroom.

### **5713 METHODS AND MATERIALS FOR TEACHING ENGLISH LEARNERS IN BILINGUAL PROGRAMS**

This course provides instruction on the methods and materials needed to effectively teach English Learners in bilingual programs. Educators will examine English Learner program models to understand their impact and suitability for different student populations. The course reviews effective practices for culturally and linguistically sustaining instruction, including considerations for bilingual settings. Participants will apply this knowledge to evaluate their current instructional practices. Participants are also introduced to the selection, development, and evaluation of materials, resources, curricula, and instructional plans for use in bilingual settings. Emphasis is placed on writing bilingual language objectives and identifying opportunities to support cross-linguistic transfer, translanguaging, and the development of bilingualism and biliteracy. Finally, participants will explore how to leverage technology to support content and language instruction that meets the diverse needs of English Learners and promote bilingualism, biliteracy, digital citizenship, and family engagement by communicating with colleagues.

### **5711 CAPSTONE I**

Building on competencies acquired through M.Ed. coursework, learners will engage with stakeholders from their educational community and define a problem of practice to frame a capstone project. The engagement with stakeholders will help learners understand how they can improve student outcomes within a specific area of focus. The resulting problem statement will establish this area of focus for future work to be completed during Capstone II and III.

### **5721 CAPSTONE II**

Based on the problem of practice identified in Capstone I, learners will develop a plan to address the problem. Learners will solicit and incorporate feedback on a research proposal and then create and revise an action research plan. This course guides students through a cycle of inquiry and research methodology selection.

### **5731 CAPSTONE III**

In the final capstone course, learners implement the plan developed in Capstone II, gather data on impact, and analyze the results. Students then share findings with collaborators, colleagues, and other stakeholders. This is the culmination of the research planning in Capstone I and II.

### **5803 SPECIAL TOPICS IN EDUCATION**

This course is for special topics or studies in the field of education. This course is offered as needed.

## **ELECTRICAL ENGINEERING (ELEC)**

### **5123 COMMUNICATION SYSTEMS**

Prerequisite: ELEC-3504 or equivalent to Random Variables and Stochastic Processes. An introduction to electronic communication systems. Performance criteria, capacity analysis, modulation systems, coding methods, detection and synchronization, link analysis, comparative analysis of signals and systems. Lecture 2 hours; laboratory 3 hours. This course is normally offered in the spring semester.

### **5323 SEMICONDUCTOR DEVICES**

Introduction to physics of semiconductor devices. Operation of fundamental electronic devices. Development of current-voltage relationships and linear circuit models. Students cannot receive credit for both ELEC-4323 and 5323. Offered in Summer only.

### **5393 POWER SYSTEM PROTECTION**

Prerequisite: ELEC-3303 or equivalent. An introduction to basic power system protection. Major focus is on the steady state modeling, analysis of balanced and unbalanced faults. The course will also focus on the systems and principles used to

detect and interrupt faults on the power system.

#### **5423 CONTROL SYSTEMS**

Control system theory of continuous time systems. Modeling physical systems through transfer functions and state space descriptions. System performance measures including stability, transient response, steady state response, and sensitivity. Classical and modern control techniques; root locus, frequency response methods and PID control. Lecture – 2 hours; Laboratory – 3 hours. Students cannot receive credit for both ELEC-4423 and ELEC-5423. This course is offered as needed.

#### **5523 SOFTWARE ENGINEERING OF REAL-TIME SYSTEMS**

Design and implementation of real-time embedded digital signal processing systems. DSP programming, real-time operating systems, parallel processing, host computer interfacing. Students cannot receive credit for both ELEC-4523 and ELEC-5523.

### **ENGINEERING (ENGR)**

#### **5003 FOUNDATIONS OF TECHNOLOGY ETHICS AND VALUES**

Theories of engineering and computer science ethics and values. Ethical theory from a Christian viewpoint. Impact of technology on society. Individual options and obligations for action. Case studies will be used to study a range of issues including environment, safety, honesty, organizational communication, quality control, and product liability. Same as CMSC-5003. This course is normally offered every semester.

#### **5023 ENGINEERING PROFESSIONAL COMMUNICATION**

Engineering Professional Communications is designed to equip students with the necessary communication skills key to their academic and professional success. The course is taught as though students are junior engineers in a corporate environment. All policies and procedures are framed as professional standards. All assignments are part of their onboarding process.

#### **5113 RANDOM VARIABLES AND STOCHASTIC PROCESSES**

Prerequisite: ENGR-5013 or equivalent. Provides a fundamental understanding of probabilistic methods in engineering and the essential mathematical methods for handling random processes. Includes the statistical properties of random variables, probabilistic transformations, and stationary and nonstationary random processes. Applications to estimation, hypothesis testing, response of systems to random inputs, estimation theory, decision theory, and queuing theory.

#### **5203 SYSTEMS ENGINEERING**

Principles and applications for design and engineering of complex technical systems: material will be a mix of lectures, case studies, and application to current industry systems. Topics include engineering systems terminology and methodology; creating innovative technical solutions; managing program requirements; resolving integration issues; effective communication; and, effective team, project, and program management. This course is normally offered every semester.

#### **5213 TOOLS OF OPERATIONS RESEARCH**

This course will introduce the student to concepts, methods and an assortment of management tools available to the Operations Research / Management Science (OR/MS) practitioner. The course emphasizes an applied approach that begins with an emphasis on modeling and progresses to practical methods for linear and nonlinear programming, data analysis, decision analysis, and simulation. This course is normally offered every semester.

#### **5223 SYSTEMS ENGINEERING MANAGEMENT**

Principles and applications for systems engineering and management of complex technical systems; material will be a mix of lectures, case studies, and application to current industry systems. Topics include systems engineering terminology and process; managing program and design requirements; design reviews; organizational structures; program planning for large system projects; and effective team, project, and program management. This course is normally offered every semester.

#### **5233 QUALITY ENGINEERING**

An introduction to the philosophies and various tools of Total Quality Management (TQM), Lean Six-Sigma, and other approaches for improving product quality, with

emphasis on how to apply these principles to evaluate engineering design quality and production quality control. This includes development of engineering design quality methods, application and analysis of testing/inspection, Statistical Process Control (SPC) tools, and the ability to assess the Cost of Poor Quality.

#### **5323 FAILURE ANALYSIS OF ENGINEERING SYSTEMS**

An investigation of engineering analysis techniques used to determine sources of design, system, and process failures. Multiple techniques applicable to many engineering disciplines are presented. This course is normally offered every semester.

#### **5333 ENGINEERING PROBABILITY & INFERENCE**

Topics in statistics with direct application to the solving of engineering problems. Inferential statistics including hypothesis tests, confidence intervals, and design of experiments.

#### **5710 PROJECT**

Prerequisite: Consent of instructor Individual or group projects involving design, verification, and report. 1-6 credit hours. May be repeated for credit, maximum 6.

#### **5793 EVALUATION OF ENGINEERING SYSTEMS PERFORMANCE**

Investigation, by an individual student, on a focused engineering topic resulting in a mature literature survey and formal poster presentation. The student's topic is subject to faculty approval prior to enrollment in the course. This course is normally offered every semester.

#### **5901 GRADUATE ENGINEERING PRACTICUM**

On-the- job experience is a valuable way for students majoring in engineering to practice and improve their skills. Working with real world problems enhances the theoretical curriculum we offer and gives students a new perspective on concepts they have been taught. Enrollment in this course will be under the supervision of an individual engineering professor, who will work with the student's supervisor. A journal or summary paper of the internship experience will be required at the conclusion of the employment period. A 12-week practicum at 20 hours per week will correspond to one hour of credit. Prior permission of the engineering graduate chair is necessary for enrollment.

### **FAMILY LIFE EDUCATION (FMLE)**

#### **5013 ISSUES IN FAMILY SCIENCE**

This course examines current and classic literature in family science to engage understanding of the history and evolution of the family and to illustrate a variety of approaches to studying the family. Emphasis will be placed on the consideration of current research issues in the field of family science as well as the family's relationship to other systems in society.

#### **5023 PARENTING AND RELATIONSHIP EDUCATION**

This course explores applications of theory and research about interpersonal relationships. Specifically, relationship form, process, and context will be examined. Special attention will be given to the role of parenting as an evolving relationship across the lifespan. Parenting and relationship support/intervention programs will be examined including content, delivery methods, and evaluation with emphasis placed upon implications of these programs for the families they are serving.

#### **5033 FAMILY RESOURCE MANAGEMENT**

Survey of current and classic personal and family resource management literature will be examined to provide an overview of how families develop and allocate resources to meet their goals. Particular emphasis will be put on the processes in which families engage a variety of resources to improve their quality of life. Topics include decision-making, stress management, finance management, and organization and building of skills for use of resources.

#### **5043 FAMILY POLICY AND ADVOCACY**

This will be a survey course examining policy and program impact on families. Emphasis will be placed on the process of policy making, including the development, implementation, and application of policy. The course will also focus on the role that family life educators have as advocates for family health and well-being. Specific attention will be given to family impact analyses, critiquing existing policy, and creating

advocacy maps.

### **5053 PROGRAM DESIGN, IMPLEMENTATION, AND EVALUATION**

This course equips the student with skills and techniques essential for family life educators. The course will lead the student through the processes of family life educational programs and techniques of family life educators who will be working with individuals and families across a variety of settings to enhance preventative strategies addressing key issues of development and human relationships at each stage of the family life cycle. The course will focus on specific techniques related to design, implementation, and evaluation of family life education programs.

### **5713 FAMILY LIFE EDUCATION THESIS I**

Research in an area of family science supervised by an advisor. Six hours required. This course is available for students seeking to pursue doctoral studies after completion of their current degree.

### **5723 FAMILY LIFE EDUCATION THESIS II**

Research in an area of family science supervised by an advisor. Six hours required. This course is available for students seeking to pursue doctoral studies after completion of their current degree.

### **5913 FAMILY LIFE EDUCATION PRACTICUM I**

This course is designed to provide students in the Family Life Education program with a supervised experience in the field. The purpose of this practicum experience is to facilitate students' growths in knowledge and expertise, as well as aid the students in the development of their personal theory of family education. This objective will be met through supervision of work and discussion or work issues with the supervisor and other students in class. (Minimum of 100 clock hours - will count toward CFLE requirements.)

### **5923 FAMILY LIFE EDUCATION PRACTICUM II**

This course is designed to provide students in the Family Life Education program with a supervised experience in the field. The purpose of this practicum experience is to facilitate students' growths in knowledge and expertise, as well as aid the students in the development of their personal theory of family education. This objective will be met through supervision of work and discussion of work issues with the supervisor and other students in the class. (Minimum of 100 clock hours - will count toward CFLE requirements.)

## **FINANCE (FINC)**

### **5103 FINANCIAL MANAGEMENT**

The course covers both theoretical and mechanical considerations in the administration of the finance function of today's service-oriented industries.

### **5133 RISK MANAGEMENT**

This course studies the tools and skills needed in assisting clients to prepare risk assessment of insurance needs and financial investing. Course objectives correspond to the CFP body of knowledge requirements. Topics covered include: Principles of Insurance; Analysis and Evaluation of Risk Exposure; Legal Aspect of Insurance; Insurance Coverage for Property and Casualty; Health, Life Disability Income; and Long-Term Care. Other topics cover Insurance Policy Selection and Policy Ownership Issues. This course is normally offered in the summer.

### **5803 SPECIAL TOPICS**

This course will cover current topics not normally included in existing courses. The course may be used as a pilot course which may be added later to the curriculum. Repeat credit on each course may be earned with different subtitles assigned to that course.

### **5901 GRADUATE BUSINESS PRACTICUM IN FINANCE**

Prerequisite: Student must be in the finance emphasis. This course provides one to three hours of credit in association with completion of an acceptable financial services industry internship/practicum. Students selecting this option will be responsible for locating an appropriate industry opportunity. This is an optional course and does not substitute for any leveling, core, or elective courses. The curriculum practical training

course period extends through an entire semester.

## **HUMAN SCIENCES (HMSC)**

### **5013 SYSTEMS THEORY**

Survey, examination, and analysis of the epistemology and epigenesis of cybernetics within broader general systems theory, as the theoretical cornerstones for work with individuals, families, groups, organizations, and communities. Examines both classic and current writings to develop the context for appropriate interpretation of the development of ideas and application related to family and community conceptualization, assessment, analysis, and full-spectrum interventions.

### **5023 FAMILY TRAUMA AND RESILIENCE**

This course provides students with a comprehensive exploration of the psychological trauma field, including the history and current theories in the field, the nature of trauma (sexual abuse, combat, and natural disasters), and how trauma affects individuals and systems, grief reactions, and traumatic stress. Also included in this class is the exploration of the professional's response to trauma, vicarious traumatization, disenfranchised grief, crisis intervention, comorbid disorders, and general treatment issues. Death and dying processes are included as well. Finally, students have the chance to review evidence-based practices in the trauma field. A variety of theoretical frameworks are presented, including cognitive, neurobiological, clinical, historical, and socio-cultural (including main controversies surrounding the field of trauma). The instructor uses a culturally-informed perspective to teach the class.

### **5033 DEVELOPMENT AND DIVERSITY ACROSS THE LIFESPAN**

This course provides an in-depth analysis of physical, cognitive, socioemotional, and spiritual development across the lifespan. Students will examine both classic and contemporary developmental theories and will be expected to evaluate processes of development in context while considering their own biases, values, and experiences. Students will devise intervention strategies with consideration of the influences of gender, religion, and culture on individual and family life.

### **5043 SEXUALITY AND THE FAMILY**

This course covers the physio-biological, socioemotional, and spiritual aspects of human sexuality through examination of male and female sexual anatomy and physiology, development, and behavior, including the identification of sexual dysfunctions and disorders, issues related to sexual identities and gender dysphoria, and the impact of sexual issues on intimate relationships. These topics will be addressed alongside conversations regarding diversity, culture, and theological perspectives related to human sexuality.

### **5053 ETHICAL AND LEGAL ISSUES IN THE HUMAN SCIENCES**

This course examines contemporary ethical, legal, and professional issues that guide the work of professionals in the human sciences. Students will be introduced to a framework of ethical decision-making to which they will apply state and federal law, alongside adherence to the standards of ethical practice from their area of specialization. This seminar format course will focus on specific ethical dilemmas in areas such as confidentiality, dual relationships, professional relationships, assessment, and research.

### **5063 RESEARCH METHODS IN THE HUMAN SCIENCES**

This course in research methods prepares students to utilize the logic and critical thinking structures of the scientific method, research design, and qualitative and statistical analysis of data. These tools will help students better make sense of their world at the individual, family, community, and macro-levels and prepare them to make data informed decisions in order to affect needed changes within their own contexts. Students will engage in research over current issues connected to their own fields of study and areas of interest. The course is intended to provide a foundation from which the student may use the knowledge and practices gained in this course throughout the rest of their graduate program and beyond.

## **INFORMATION SYSTEMS (INFO)**

### **5303 BUSINESS INTELLIGENCE**

The course focuses on the preferred tools and techniques for collecting and evaluating information in an organization. Emphasis is placed on e-business and the future.

integrate and apply course materials to their clinical work.

## **MANAGEMENT (MGMT)**

### **5603 MANAGERIAL ETHICS**

This course examines the basic ethical issues involved in the conduct of business including both classical and biblical perspectives. Critical thinking of organizations as a spiritual, social, moral, and ethical activity is explored, as well as the ethical decision process.

### **5613 LEADER EFFECTIVENESS**

The course examines how managers and leaders affect the behavioral social systems of work organizations. The entrepreneurial function is also studied.

### **5623 TEAM AND GROUP LEADERSHIP**

This course examines leadership within organizational settings. Leadership dilemmas and issues relating to groups are analyzed. Emphasis is placed on enhancing team leadership in organizations. This course is normally offered in the summer.

### **5643 ORGANIZATIONAL DEVELOPMENT AND DESIGN**

This course will investigate the emerging field of organizational development-major theories and basic concepts on the nature of work. Discussion will focus on forces impacting individual, group, and system performance and productivity within complex socio-technical systems. This course is normally offered in the summer.

### **5653 STRATEGIC MANAGEMENT**

Prerequisite: Must have completed or concurrently enrolled in ACCT-5103 FINC-5103 and MKTG-5703. This is the M.B.A. capstone course. As such, it should be the last course taken in the curriculum. The importance of integrating management functions and decision making will be emphasized. A case study approach is used.

### **5803 SPECIAL TOPICS**

This course will cover current topics not normally included in existing courses. The course may be used as a pilot course which may be added later to the curriculum. Repeat credit on each course may be earned with different subtitles assigned to that course.

## **MARKETING (MKTG)**

### **5703 MARKETING MANAGEMENT**

Prerequisite: BUSA-5023 or equivalent. The course focuses on integrating marketing management decisions with the mission of the entity as well as its specific financial objectives.

### **5803 SPECIAL TOPICS**

This course will cover current topics not normally included in existing courses. The course may be used as a pilot course which may be added later to the curriculum. Repeat credit on each course may be earned with different subtitles assigned to that course.

## **MARRIAGE AND FAMILY THERAPY (MFTH)**

### **5013 THEORETICAL MODELS OF THE FAMILY**

This course is designed to introduce students to the major theoretical approaches to marriage and family therapy (MFT). A significant focus of this course will be on: 1) cognitively/intellectually scaffolding the essential stages, stances, methods, and assessment processes for each major model and 2) clinically mastering the practical therapeutic approaches and interventions of each major model. Additional focus will be on interviewing, hypothesizing, assessment, and clinical practice issues central to an overall systemic approach to MFT. Students will have the opportunity to role play in class and be in the role of therapist, family member, and consulting team members incorporating the lectures and readings into practiced skill. Additionally, this course will challenge students to look closely at their own family of origin. Students will be expected to draw on their previous experiences, coursework, and knowledge to

### **5023 BASIC THERAPY SKILLS**

Introductory, skills-based course where students learn the practical aspects of doing systemic family therapy. The course presumes no background as a therapist and aims to provide skills in conducting interviews with individuals, as well as couples and families, making initial assessments and learning to manage a professional practice. In addition, the course will focus on the role of personal values, beliefs, and interpersonal style in the work of psychotherapy. This course is structured as a fundamental counseling skills course, with the basic purpose of developing relationships building, goal setting, selecting client-aligned interventions, and evaluation of client outcomes as observed in the University clinic, video cases, or other resources.

### **5033 FAMILY AND INDIVIDUAL ASSESSMENT**

This course focuses on the concepts and tools of assessment in the mental health field, particularly family therapy. We will be looking at how family processes may be assessed from a variety of contexts - for example, systemic, developmental, marital, and behavioral - the different models for assessing family functioning, and some of the individual and family assessment instruments that are used. Students will obtain both a theoretical and practical understanding of the uses and limitations of various approaches to the clinical assessment of individuals, couples, and families. The goal of the course is to allow students to acquire an appreciation for the varying philosophies underlying assessment, relevant assessment concepts, various sources of appraisal information, and contextual interpretation of assessment data, including the influence of cultural and social diversity on testing, and to expose students to many of the tests in use today.

### **5043 PSYCHOPATHOLOGY AND PSYCHOPHARMACOLOGY**

This course is designed to prepare students for a two-fold process: 1) making sense of the emergence and expression of human psychopathology across the lifespan and within biopsychosocial spiritual framework and 2) examining the neurochemical, physiological, and behavioral effects of the major classes of psychopharmacology can be understood as a set of developmental static entities. Rather, patterns of maladjustment that we often refer to as psychopathological almost always emerge from the complex transactions between biological vulnerabilities (genetic, neural, hormonal) and environmental risk factors (family coercion, deviant peer group affiliations, neighborhood criminality) over time. Thus, psychopathology occurs in a developing individual, and his or her personal relationships, and cannot be defined, identified, or understood without consideration of the normal course of development. The course assistant therapist in understanding their role in working with medical professionals in the concurrent treatment of mental health issues being an interdisciplinary approach. A comprehensive understanding of the Diagnostic Statistical Manual of Mental Disorders and complementary drug classes and approaches for medication regimens should be achieved by completion of this course.

### **5053 CHILD AND ADOLESCENT THERAPY**

This course is a didactic and experiential course that prepares therapists to work with the special needs, qualities, and developmental levels of children and adolescents. This course will focus on developmental needs, specific therapeutic interventions, and common emotional issues of children and adolescents. Group and individual counseling techniques will be practiced and treatment options covered.

### **5063 COUPLES TREATMENT AND CONTEMPORARY ISSUES IN MARRIAGE AND FAMILY THERAPY**

This course is designed to strengthen knowledge and critical skills in two areas: 1) focus on assessment of couples and the systemic interventions available to address common couple issues. Pre-marriage, divorce and remarriage, sexuality, domestic violence, infidelity, and gender, and 2) contemporary issues in marriage and family therapy designed to enhance the role of the therapist as citizen and advocate, the role of marriage and family therapists within a contemporary society and Christian churches, telehealth and virtual therapy, medical family therapy, and other careers suited for marriage and family therapy training, and marriage and family therapy contemporary issues, such as reimbursement, financial aspects of practice, and more.

### **5713 MARRIAGE AND FAMILY THERAPY PRACTICUM I**

Ongoing supervision is required of all marriage and family therapy students in clinical practice at the OC campus clinic and/or any practicum site (50 to 100 hours). This

meets the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) requirements that students receive ongoing supervision of their clinical work from a qualified MFT supervisor. It also meets the practice requirements of OC MFT graduate programs. Throughout students' clinical practice, they will be assigned a group supervisor. The majority of supervision (at least 50%) must be based on raw data (i.e., live observation, electronic recordings of sessions with clients, etc.). The course syllabus serves as a contract between the student, the program, and the group supervisor. The purpose of the practicum is to facilitate students' growth in clinical knowledge and expertise, as well as aid the student in the development of their personal theory of change. This objective will be met through supervision of therapy and discussion of therapy issues with the supervisor and other students in the class. A minimum of 300 clock hours is required for Oklahoma Licensure.

### **5723 MARRIAGE AND FAMILY THERAPY PRACTICUM II**

Ongoing supervision is required of all marriage and family therapy students in clinical practice at the OC campus clinic and/or any practicum site (50 to 100 hours). This meets the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) requirements that students receive ongoing supervision of their clinical work from a qualified MFT supervisor. It also meets the practice requirements of OC MFT graduate programs. Throughout students' clinical practice, they will be assigned a group supervisor. The majority of supervision (at least 50%) must be based on raw data (i.e., live observation, electronic recordings of sessions with clients, etc.). The course syllabus serves as a contract between the student, the program, and the group supervisor. The purpose of the practicum is to facilitate students' growth in clinical knowledge and expertise, as well as aid the student in the development of their personal theory of change. This objective will be met through supervision of therapy and discussion of therapy issues with the supervisor and other students in the class. A minimum of 300 clock hours is required for Oklahoma Licensure.

### **5730 CONTINUING PRACTICUM**

Ongoing supervision is required of all marriage and family therapy students in clinical practice at the OC campus clinic and/or any practicum site (100 to 200 hours). This meets the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) requirements that students receive ongoing supervision of their clinical work from a qualified MFT supervisor. It also meets the practice requirements of OC MFT graduate programs. Throughout students' clinical practice, they will be assigned a group supervisor. The majority of supervision (at least 50%) must be based on raw data (i.e., live observation, electronic recordings of sessions with clients, etc.). The course syllabus serves as a contract between the student, the program, and the group supervisor. The purpose of the practicum is to facilitate students' growth in clinical knowledge and expertise, as well as aid the student in the development of their personal theory of change. This objective will be met through supervision of therapy and discussion of therapy issues with the supervisor and other students in the class. A minimum of 300 clock hours is required for Oklahoma Licensure.

### **5743 SYSTEMIC FAMILY THERAPY IN-SERVICE**

The purpose of this course is to round out the "Systemic Family Therapy" certificate by the clinician progressing through a practical experience of carrying at least one systemic case (client configuration: two or more in the room) under clinical supervision while taking this course. Competencies from the four core certificate classes will be demonstrated through the clinician providing video of their own systemic family case, a presentation of the case, systemic model/s utilized, cycles tracked, interventions provided, and tracking change completion. This course will include a \$75 fee for use of the clinical facilities. This course facilitates the practice of systemically provided marriage and family therapy with clients from the community and the management of those services including: (1) clinical note writing through a systemic lens; (2) ethical client care and systemic decision making; and (3) participating in the systemically framed supervision process of marriage and family therapy. This specific in-service course is developmentally framed as a "beginning level systemically oriented clinical skill set" delivered by a post-graduate therapist. Their clinical skills should demonstrate MFT systems models and analysis, systems-based skills and case conceptualization, and systemic application toward the therapist's personal theory of change through a systemic world view.

### **5800 MARRIAGE & FAMILY THERAPY PRACTICUM**

This course facilitates the practice of marriage and family therapy with clients from the community and the management of delivering services including caseload and paperwork responsibilities, practicing ethical client care and decision making, and

participating in the supervision process of marriage and family therapy. Practicum serves to meet the graduation requirement of 300 direct client contact hours including 100 relational hours and 100 hours of relational/systemic supervision including 50 hours of observable data.

### **5933 MARRIAGE AND FAMILY THERAPY CAPSTONE**

The capstone course serves as the culmination of OC's MFT degree program. In this course, students synthesize clinical theory, skills, ethics, and research-based analysis to address various vignettes and scenarios. Coursework will include a signature assignment focused on MFT proficiency in licensure preparation and clinical work. A mock exam day will be administered. A portfolio will be compiled and a presentation regarding their theoretical orientation (personal clinical theory of change) when approaching work with individuals, couples, and families will be presented to a jury of faculty and/or administrators. Students' capstone presentations and portfolios will be reviewed by the primary faculty advisor at the conclusion of coursework and may serve as a tool for further research and/or practice. The capstone course serves to assess the student achievement of all MFT program learning outcomes.

## **MATHEMATICS (MATH)**

### **5113 PROBABILITY AND STATISTICS I**

Prerequisite: MATH 2314 Simple probability models, random variables, distribution functions, and discrete and continuous distributions. Students cannot receive credit for both MATH 4113 and MATH 5113. Normally offered as needed.

### **5213 PROBABILITY AND STATISTICS II**

Prerequisite: MATH-5113 or MATH-4113 Sampling, presentation of data, testing statistical hypotheses, estimating and testing variability and comparisons of populations. Students cannot receive credit for both MATH-4213 and MATH-5213. Normally offered as needed.

### **5313 COMPLEX VARIABLES**

Complex numbers, analytic functions, integration, series, contour integration, analytic continuation, multi-valued problems, conformal mapping, boundary value problems and integral transforms. Students cannot receive credit for both MATH-4313 and MATH-5313. Normally offered as needed.

### **5513 LINEAR ALGEBRA**

Prerequisite: Acceptance into the M.S.E. program. This is a graduate mathematics class designed for engineering students. Topics include matrices, systems of equations, vector spaces, linear transformations, orthogonality, and eigenvalues. Special attention will be given to engineering applications of these topics. Normally offered as needed.

## **MECHANICAL ENGINEERING (MECH)**

### **5113 MECHANICAL ENGINEERING APPLICATION OF PARTIAL DIFFERENTIAL EQUATIONS**

Partial differential equations applications to common mechanical engineering problems. Parabolic, hyperbolic and elliptic equations. Analytical and numerical solution methods. Students cannot receive credit for both MECH-4113 and MECH-5313.

### **5143 FINITE DIFFERENCE METHODS**

Ordinary and partial differential equation applications to common mechanical engineering problems. Review of analytical solutions, but emphasis on development and solution of numerical models.

### **5153 PRINCIPLES OF ADDITIVE MANUFACTURING**

A study of the basic principles of additive manufacturing (3D printing), focused heavily on practical engineering applications and hands-on projects. Polymer, metal, composite, and ceramic additive manufacturing technologies will be explored, including material properties, advantages and disadvantages, and identification of engineering applications. Introduction to design and redesign for additive manufacturing, industrial applications, and the future of additive manufacturing. Lecture - 3 hours.

### **5523 FINITE ELEMENT ANALYSIS**

Prerequisite: MECH-4123 or equivalent. An introduction to the use of finite element methods for the analysis and design of mechanical systems. Emphasis will be placed on both structural and thermal scenarios. The course will start with an overview of 1 and 2-dimensional finite element theory and then progress to the use of commercial software for 3-dimensional analysis. Significant attention will be placed on the proper use of commercial finite element software in solving real-world applications. Students cannot receive credit for both MECH-4523 and MECH-5523.

### **5533 VIBRATION THEORY & APPLICATION**

A study of free and forced vibration of both single and multiple degree-of-freedom mechanical and structural systems with and without damping, design of vibration isolators and absorbers, and shock spectrums. Students cannot receive credit for both MECH-4533 and MECH-5533.

### **5623 ADVANCED ENGINEERING MATERIALS**

A continuation of the study of material science, including a more in-depth look at metal and polymer behaviors, plus discussions of modern materials including composites, nanomaterials, and multifunctional materials such as shape-memory alloys. Special emphasis will be placed on material selection considerations for engineering design. Students cannot receive credit for both MECH-4623 and MECH-5623.

## **SPECIAL EDUCATION (SPED)**

### **5003 FOUNDATIONS OF SUPPORTING STUDENTS WITH DISABILITIES**

This course offers a survey of issues relevant to teaching students with disabilities, including historical, legal, ethical, and philosophical considerations. Educators build the foundations for working with students with disabilities by exploring perspectives on disability, the role of the special educator, and current issues in special education. They articulate a personal philosophy of supporting students with disabilities and reflect on the impact of educator mindsets on students with disabilities. Educators also develop resources to support families with understanding special education laws and policies and communicate information about special education laws to colleagues. The course culminates with an opportunity for educators to apply their learning by analyzing a student's IEP and developing a lesson plan that both meets the needs of all students through universal design and individualizes support to accommodate a specific student.

### **5013 CHARACTERISTICS OF STUDENTS WITH DISABILITIES**

In this course, educators examine the characteristics of students with disabilities in the categories specified in the Individuals With Disabilities Education Act. Participants work to understand and support students with high-incidence disabilities; students with autism, emotional disabilities, and sensory needs in the classroom; and students with low-incidence disabilities. Throughout the course, educators serve as a collaborative resource by communicating information about students with disabilities to colleagues and other stakeholders.

### **5023 INTERVENTION IDENTIFICATION, AND ASSESSMENT FOR STUDENTS WITH DISABILITIES**

In this course, educators assess the strengths and needs of students with disabilities to make educational recommendations, with an emphasis on the skills required for developing and implementing IEPs. Educators collect information on a student using a variety of formal and informal assessment methods. Educators select and adapt assessments, interpret assessment results, and make instructional decisions based on assessment data. Educators also apply knowledge of best practices for intervention (RTI/MTSS) and identification. Throughout the course, educators engage students, families, and other stakeholders as partners by gathering input, communicating assessment results, and collaborating to use assessment data to guide decisions.

### **5033 METHODS FOR TEACHING FOR STUDENTS WITH DISABILITIES**

In this course, educators learn to plan and implement individualized instruction for students with disabilities in a variety of settings. Educators first plan instruction that meets the needs of all students in a general education classroom using universal design, and then implement and monitor strategies to help individual students access grade-level instruction and build independence. Educators support students with disabilities in literacy by implementing research-based specialized literacy instruction that addresses student needs in foundational skills, vocabulary, and comprehension.

Educators also support students with disabilities in math by applying understanding of grade-level and prerequisite standards to identify student needs and by designing, implementing, and monitoring specialized math instruction.

### **5043 METHODS FOR TEACHING FOR STUDENTS WITH DISABILITIES II**

In this course, educators extend their ability to plan and implement individualized instruction for students with disabilities in a variety of settings. Educators first implement strategies for promoting active engagement and countering disproportionality in discipline through universal design and inclusive classroom practices. Educators then implement research-based strategies to provide additional behavioral and social-emotional support to students that require additional intervention. Educators also leverage assistive technology tools to support student independence and provide equitable access to learning opportunities.

### **5053 PROFESSIONALISM AND COLLABORATION FOR EDUCATORS WORKING WITH STUDENTS WITH DISABILITIES**

In this course, educators develop the skills for collaborating professionally with other stakeholders to improve support and enhance opportunities for students with disabilities. Special educators create opportunities for asset-based collaboration with families, school-based staff, and other stakeholders. Educators then establish a co-teaching relationship to improve support for all students, including individualized support for students with disabilities. The course culminates with an opportunity for educators to plan for helping students transition to college, career, and independent living environments following high school.

### **5103 SUPPORTING STUDENTS WHO ARE YOUNG, TRANSITIONING, OR WITH SIGNIFICANT DISABILITIES**

In this course, educators examine how to design comprehensive instructional supports for students with significant disabilities and collaborate with a team to help students access grade-level learning. They also examine the elements of early childhood support for young students with disabilities and audit school, district, and Community-based resources to support the success of young students with disabilities through early intervention. Finally, participants learn about the transition planning process and how important it is to set students up for successful post-secondary outcomes.

### **5123 CULTIVATING LEADERSHIP SKILLS TO SUPPORT STUDENTS WITH DISABILITIES**

This course supports the cultivation of leadership skills that support systemic improvements that help students with disabilities succeed. Despite the hard work of leaders and professionals in schools, many improvement initiatives fail to produce the positive changes they seek to affect. Some of this failure can be attributed to mistakes or missteps made early in the process, such as failing to define the problem outcome clearly, speculating about solutions but never investigating, selecting strategies that are not sufficiently comprehensive and/or responsive to the problem outcome, and not carefully describing the comprehensive, responsive strategy that will be implemented. The role of the principal or leader is to help their teams analyze the existing school culture, analyze the trends, and propose systemic improvement plans for supporting students with disabilities within their school or district setting.

### **5133 CHARACTERISTICS OF STUDENTS WITH SEVERE AND PROFOUND DISABILITIES**

In this course, educators examine how to design comprehensive instructional supports for students with significant disabilities and collaborate with a team to help students access grade-level learning. They also examine the elements of early childhood support for young students with disabilities and audit school, district, and community-based resources to support the success of young students with disabilities through early intervention. Finally, participants learn about the transition planning process and how important it is to set students up for successful post-secondary outcomes.

### **5143 CULTIVATING LEADERSHIP SKILLS TO SUPPORT STUDENTS WITH DISABILITIES**

This course supports the cultivation of leadership skills that support systemic improvements that help students with disabilities succeed. Despite the hard work of leaders and professionals in schools, many improvement initiatives fail to produce the positive changes they seek to affect. Some of this failure can be attributed to mistakes

of missteps made early in the process, such as failing to define the problem outcome clearly, speculating about solutions but never investigating, selecting strategies that are not sufficiently comprehensive and/or responsive to the problem outcome, and not carefully describing the comprehensive, responsive strategy that will be implemented. The role of the principal or leader is to help their teams analyze the existing school culture, analyze the trends, and propose systemic improvement plans for supporting students with disabilities within their school or district setting.

### **5153 SUPPORTING ENGLISH LEARNERS WITH DISABILITIES**

This course focuses on the foundational practices that allow teachers to begin to positively impact English Learners with disabilities in their classes and schools. Educators research the characteristics of and diversity within the English Learner population and communicate information about cultural and linguistic diversity in their school contexts to colleagues. Educators then explore the unique needs of English Learners with disabilities, methods of support, and effective instructional and assessment strategies.

# ACADEMIC CALENDAR

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## 2025 FALL SEMESTER (15 WEEKS)

August 21	Thursday	Classes begin for the Fall 2025 semester
August 29	Friday	Last day for new enrollment and/or to add classes
September 1	Monday	Labor Day (OC closed)
September 19	Friday	Last day to drop a class without a "W" on the transcript
October 7	Thursday	Six weeks progress reports (grades) due at noon
October 16-17	Thursday-Friday	Fall Break (No Classes)
October 27	Monday	Seniors graduating in the next semester pre-enrollment begins
October 28	Tuesday	Senior pre-enrollment begins
October 29	Wednesday	Junior pre-enrollment begins
October 30	Thursday	Sophomore pre-enrollment begins
October 31	Friday	Freshman pre-enrollment begins
November 14	Friday	Last day to withdraw or drop a class with a "W" on the transcript
November 24-28	Monday-Friday	Thanksgiving Break (No Classes)
December 8-11	Monday-Thursday	Final Exam Week
December 12	Friday	Commencement
December 16	Tuesday	Final grades for Fall 2025 semester due at Noon

## 2025 FALL TERM I (7 WEEKS)

August 25	Monday	Fall Term I begins
August 29	Friday	Last day for Fall Term I new enrollment and/or to add a class
August 29	Friday	Last day to drop a Fall Term I class without a "W" on the transcript
October 3	Friday	Last day to withdraw or drop a Fall Term I class with a "W" on the transcript
October 10	Friday	Fall Term I ends
October 14	Tuesday	Final grades for Fall Term I due at Noon

## 2025 FALL TERM II (7 WEEKS)

October 20	Monday	Fall Term II begins
October 24	Friday	Last day for Fall Term II new enrollment and/or to add a class
October 24	Friday	Last day to drop a Fall Term II class without a "W" on the transcript
December 1	Monday	Last day to withdraw or drop a Fall Term II class with a "W" on the transcript
December 11	Thursday	Fall Term II ends
December 12	Tuesday	Commencement
December 16	Friday	Final grades for Fall Term II due at Noon

## 2025 WINTER SESSION (3 WEEKS)

December 15	Monday	Winter Session begins
December 15	Monday	Last day for Winter Session I new enrollment and/or to add a class
December 18	Thursday	Last day to drop a Winter Session I class without a "W" on the transcript
December 22-26	Monday-Friday	Christmas Break
January 6	Tuesday	Last day to withdraw or drop a Winter Session I class with a "W" on the transcript
January 10	Friday	Winter Term ends
January 14	Tuesday	Final grades for Winter Session I due at Noon

## 2026 SPRING SEMESTER (15 WEEKS)

January 11	Sunday	Classes begin for the Spring 2025 semester
January 16	Friday	Last day for new enrollment and/or to add classes
January 19	Monday	Martin Luther King Jr. Day (OC closed)
February 6	Friday	Last day to drop a class without a "W" on the transcript
February 24	Tuesday	Six weeks progress reports (grades) due at noon
March 15-20	Sunday-Friday	Spring Break (No Classes)
March 30	Monday	Seniors graduating in the next semester pre-enrollment begins
March 31	Tuesday	Senior pre-enrollment begins
April 1	Wednesday	Junior pre-enrollment begins
April 2	Thursday	Sophomore pre-enrollment begins
April 3	Friday	Freshman pre-enrollment begins
April 10	Friday	Last day to withdraw or drop a class with a "W" on the transcript
April 26-30	Sunday-Thursday	Final Exam Week
May 1	Friday	Commencement
May 5	Tuesday	Final grades for Spring 2024 semester due at Noon

**2026 SPRING TERM I (7 WEEKS)**

January 12	Monday	Classes begin for Spring Term I
January 16	Friday	Last day for Spring Term I new enrollment and/or to add a class
January 16	Friday	Last day to drop a Spring Term I class without a "W" on the transcript
January 19	Monday	Martin Luther King Jr. Day
February 20	Friday	Last day to withdraw or drop a Spring Term I class with a "W" on the transcript
February 27	Friday	Spring Term I ends
March 3	Tuesday	Final grades for Spring Term I due at Noon

**2026 SPRING TERM II (7 WEEKS)**

March 9	Monday	Classes begin for Spring Term II
March 13	Friday	Last day for Spring Term II new enrollment and/or to add a class
March 13	Friday	Last day to drop a Spring Term II class without a "W" on the transcript
March 15-20	Sunday-Friday	Spring Break (No Classes)
April 24	Friday	Last day to withdraw or drop a Spring Term II class with a "W" on the transcript
April 30	Thursday	Spring Term II ends
May 1	Friday	Commencement
May 5	Tuesday	Final grades for Spring Term II due at Noon

**2026 SUMMER TERM I (7 WEEKS)**

May 11	Monday	Classes begin for Summer Term I
May 15	Friday	Last day for Summer Term I new enrollment and/or to add a class
May 15	Friday	Last day to drop a Summer Term I class without a "W" on the transcript
May 25	Monday	Memorial Day (OC closed)
June 19	Friday	Last day to withdraw or drop a Summer Term I class with a "W" on the transcript
June 26	Friday	Summer Term I ends
June 30	Tuesday	Final grades for Summer Term I due at Noon

**2026 SUMMER SESSION I (3 WEEKS)**

May 4	Monday	Classes begin for Summer Session I
May 4	Monday	Last day for Summer Session I new enrollment and/or to add a class
May 6	Wednesday	Last day to drop a Summer Session I class without a "W" on the transcript
May 19	Tuesday	Last day to withdraw or drop a Summer Session I class with a "W" on the transcript
May 22	Friday	Summer Session I ends
May 26	Tuesday	Final grades for Summer Session I due at Noon

**2026 SUMMER SESSION II (3 WEEKS)**

May 25	Monday	Memorial Day
May 25	Monday	Classes begin for Summer Session II
May 25	Wednesday	Last day for Summer Session II new enrollment and/or to add a class
May 28	Thursday	Last day to drop a Summer Session II class without a "W" on the transcript
June 10	Wednesday	Last day to withdraw or drop a Summer Session II class with a "W" on the transcript
June 12	Friday	Summer Session II ends
June 16	Tuesday	Final grades for Summer Session II due at Noon

**2026 SUMMER TERM II (7 WEEKS)**

June 29	Monday	Classes begin for Summer Term II
July 6	Monday	Last day for Summer Term II new enrollment and/or to add a class
July 6	Monday	Last day to drop a Summer Term II class without a "W" on the transcript
August 7	Friday	Last day to withdraw or drop a Summer Term II class with a "W" on the transcript
August 14	Friday	Summer Term II ends
August 18	Tuesday	Final grades for Summer Term II due at Noon

**2026 SUMMER SESSION III (3 WEEKS)**

June 15	Monday	begin for Summer Session III
June 15	Monday	Last day for Summer Session III new enrollment and/or to add a class
June 17	Wednesday	Last day to drop a Summer Session III class without a "W" on the transcript
June 30	Tuesday	Last day to withdraw or drop a Summer Session III class with a "W" on the transcript
July 3	Saturday	Summer Session III ends
July 21	Tuesday	Final grades for Summer Session III due at Noon

**2026 SUMMER SESSION IV (3 WEEKS)**

July 6	Monday	Classes begin for Summer Session IV
July 6	Monday	Last day for Summer Session IV new enrollment and/or to add a class
July 8	Wednesday	Last day to drop a Summer Session IV class without a "W" on the transcript
July 21	Tuesday	Last day to withdraw or drop a Summer Session IV class with a "W" on the transcript
July 24	Friday	Summer Session IV ends
July 28	Tuesday	Final grades for Summer Session IV due at Noon

**2026 SUMMER SESSION V (3 WEEKS)**

July 27	Monday	Classes begin for Summer Session V
July 27	Monday	Last day for Summer Session V new enrollment and/or to add a class
July 29	Wednesday	Last day to drop a Summer Session V class without a "W" on the transcript
Aug 11	Tuesday	Last day to withdraw or drop a Summer Session V class with a "W" on the transcript
Aug 14	Friday	Summer Session V ends
Aug 18	Tuesday	Final grades for Summer Session V due at Noon