ORU

ORU Professional Program Outcomes

2022

Contents

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College of Science and Engineering

Behavioral Sciences Department

Criminal Justice

#	Program Outcome
1	Students will demonstrate an understanding of how the various agencies that comprise the criminal justice system are structured and how those agencies function.
2	Students will demonstrate an understanding of various criminological theories about the etiology of crime, criminality, delinquency and victimization.
3	Students will demonstrate an understanding of how research, planning, and evaluation methods are used to expand knowledge in the field and discipline.
4	Students will demonstrate an understanding of how ideological, social, political and fiscal forces shape crime policies.
5	Students will demonstrate an understanding of the diverse and multicultural nature of society and how that might impact treatment by the criminal justice system.

Psychology (BA)

#	Program Outcome
1	**Goal 1: Knowledge Base in Psychology (American Psychological Association Goal 1)**
	1.1 Describe key concepts, principles, and overarching themes in psychology
	1.2 Develop a working knowledge of psychology's content domains
2	**Goal 2: Scientific Inquiry and Critical Thinking (American Psychological Association Goals 2 and 3)**
	2.1 Demonstrate psychology information literacy
	2.2 Interpret, design, and conduct basic psychological research
3	**Goal 3: Ethical and Social Responsibility in a Diverse World (American Psychological Association Goals 5 and 8)**
	3.1 Apply ethical standards to evaluate psychological science and practice
	3.2 Build & Enhance Interpersonal Relationships
4	**Goal 4: Communication (American Psychological Association Goal 7)**
	4.1 Demonstrate effective writing for different purposes
	4.2 Exhibit effective presentation skills for different purposes
5	**Goal 5: Professional Development Communication (American Psychological Association Goals 4, 9 and 10)**
	5.1 Apply psychological content and skills to career goals
	5.2 Refine project-management skills
6	**Goal 6: Integrate Christian Faith Systems**
	6.1 Apply Christian Principles to Psychological Systems
	6.2 Present an integrated theory using biblical and psychological support

Psychology (BS)

#	Program Outcome
1	**Goal 1: Knowledge Base in Psychology (American Psychological Association Goal 1)**
	1.1 Describe key concepts, principles, and overarching themes in psychology
	1.2 Develop a working knowledge of psychology's content domains
2	**Goal 2: Scientific Inquiry and Critical Thinking (American Psychological Association Goals 2 and 3)**
	2.1 Demonstrate psychology information literacy
	2.2 Interpret, design, and conduct basic psychological research
3	**Goal 3: Ethical and Social Responsibility in a Diverse World (American Psychological Association Goals 5 and 8)**
	3.1 Apply ethical standards to evaluate psychological science and practice
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	5.1 Apply psychological content and skills to career goals
	5.2 Refine project-management skills
6	**Goal 6: Integrate Christian Faith Systems**
	6.1 Apply Christian Principles to Psychological Systems
	6.2 Present an integrated theory using biblical and psychological support

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Social Work

#		Program Outcome
1		**Demonstrate Ethical & Professional Behavior**
	a.	make ethical decisions by applying the standards of the NASW Code of Ethics, relevant laws and regulations, models for ethical decision-making, ethical conduct of research, and additional codes of ethics as appropriate to context;
	b.	use reflection and self-regulation to manage personal values and maintain professionalism in practice situations;
	c.	demonstrate professional demeanor in behavior; appearance; and oral, written, and electronic communication;
	d.	use technology ethically and appropriately to facilitate practice outcomes; and
	e.	use supervision and consultation to guide professional judgment and behavior.
	f.	create and practice a plan of self-care and document activity.
2		**Engage Diversity and Difference in Practice**
	a.	apply and communicate understanding of the importance of diversity and difference in shaping life experiences in practice at the micro, mezzo, and macro levels;
	b.	present themselves as learners and engage clients and constituencies as experts of their own experiences; and
	c.	apply self-awareness and self-regulation to manage the influence of personal biases and values in working with diverse clients and constituencies.
3		**Advance Human Rights and Social, Economic and Environmental Justice**
	a.	apply their understanding of social, economic, and environmental justice to advocate for human rights at the individual and system levels; and
	b.	engage in practices that advance social, economic, and environmental justice.
4		**Engage in Practice-informed Research and Research-informed Practice**
	a.	use practice experience and theory to inform scientific inquiry and research;
	b.	apply critical thinking to engage in analysis of quantitative and qualitative research;
	c.	methods and research findings; and
	d.	use and translate research evidence to inform and improve practice, policy, and service delivery.
5		**Engage in Policy Practice**
	a.	Identify social policy at the local, state, and federal level that impacts well-being, service delivery, and access to social services;
	b.	assess how social welfare and economic policies impact the delivery of and access to social services;
	c.	apply critical thinking to analyze, formulate, and advocate for policies that advance human rights and social, economic, and environmental justice.

6		**Engage with Individuals, Families, Groups, Organizations, and Communities**
	a.	apply knowledge of human behavior and the social environment, person-in- environment, and other multidisciplinary theoretical frameworks to engage with clients and constituencies; and
	b.	use empathy, reflection, and interpersonal skills to effectively engage diverse clients and constituencies.
7		**Assess Individuals, Families, Groups, Organizations, and Communities**
	a.	collect and organize data, and apply critical thinking to interpret information from clients and constituencies;
	b.	apply knowledge of human behavior and the social environment, person-in- environment, and other multidisciplinary theoretical frameworks in the analysis of assessment data from clients and constituencies;
	c.	develop mutually agreed-on intervention goals and objectives based on the critical assessment of strengths, needs, and challenges within clients and constituencies; and
	d.	select appropriate intervention strategies based on the assessment, research knowledge, and values and preferences of clients and constituencies.
8		**Intervene with Individuals, Families, Groups, Organizations, and Communities**
	a.	critically choose and implement interventions to achieve practice goals and enhance capacities of clients and constituencies;
	b.	apply knowledge of human behavior and the social environment, person-in- environment, and other multidisciplinary theoretical frameworks in interventions with clients and constituencies;
	c.	use inter-professional collaboration as appropriate to achieve beneficial practice outcomes;
	d.	negotiate, mediate, and advocate with and on behalf of diverse clients and constituencies; and
	e.	facilitate effective transitions and endings that advance mutually agreed-on goals.
9		**Evaluate Practice with Individuals, Families, Groups, Organizations, and Communities**
	a.	select and use appropriate methods for evaluation of outcomes;
	b.	apply knowledge of human behavior and the social environment, person-in- environment, and other multidisciplinary theoretical frameworks in the evaluation of outcomes;
	c.	critically analyze, monitor, and evaluate intervention and program processes and outcomes; and
	d.	apply evaluation findings to improve practice effectiveness at the micro, mezzo, and macro levels.
10		**Integrate Faith with the Practice of Social Work**
	a.	integrate calling, beliefs, and faith motivation with competency training of social work practice

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Sociology

#	Program Outcome
1	Describe and apply an understanding of the major sociological theories and core concepts of sociology (for example: socialization, culture, deviance, inequality, social institutions, and globalization).
2	Demonstrate an understanding and recognition of the diversity of perspectives, cultural understandings, and ways of thinking that others bring to bear on social science questions.
3	Acquire knowledge about culture, social institutions, and everyday interactions as they shape; identity, behavior, social systems, social inequality, and the social construction of self and groups.
4	Use scientific inquiry and critical thinking skills in applying classifications, principles, generalizations, theories, models, and/or structures pertinent to social scientific efforts to organize conceptual knowledge in various fields.
5	Explore the main methods of sociological research and identify their strengths and weaknesses applying core principles of empirical research including; research design, data analysis, interpretation, and ethical standards to critically evaluate scholarly research.
6	Produce written work that effectively integrates sociological concepts or theories with empirical findings.
7	Apply sociological understandings to public debates, community programs, and contemporary issues.
8	Integrate Christian faith and values with sociological perspectives to impact the general sociological knowledge base as well as the overall field of sociology.

#	Program Outcome
1	Core concepts of sociology
2	Diversity and cultural understanding
3	Behavior within social systems
4	Social theories and modeling
5	Empirical research
6	Social science writing
7	Application of social science knowledge
8	Integration of Christian faith and values

Biology & Chemistry Department

Biology

#	Program Outcome
1	Equip students to scientifically investigate biological based problems and communicate their research to the scientific community.
2	Educate students to be knowledgeable of current biological trends, concepts, and facts.
3	Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.
4	Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate health care, food insecurity, and pollution.
5	Prepare our students for entry into graduate programs or health programs.

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Biomedical Chemistry

#	Program Outcome
1	Students will define problems clearly, develop testable hypotheses, design experiments, analyze data using appropriate statistical methods, and draw appropriate conclusions.
2	Students will use peer-reviewed scientific literature effectively and evaluate technical articles critically.
3	Students will choose safe laboratory practices and responsible disposal techniques, defend safety regulations, understand and use MSDS, and respond effectively to lab emergencies.
4	Students will defend chemical information in clear, well-organized, and concise reports in a scientifically appropriate style using computerized technologies in presentations.
5	Students will work effectively in teams of diverse students to evaluate and address scientific problems while demonstrating appropriate leadership skills.
6	Students will demonstrate sensitivity to the Holy Spirit by choosing to conduct ethically responsible research with awareness of the role of chemistry in the global society.
7	Students will demonstrate knowledge of scientific principles on a pre-professional national exam appropriate to career of interest.

Chemistry

#	Program Outcome
1	Students will define problems clearly, develop testable hypotheses, design experiments, analyze data using appropriate statistical methods, and draw appropriate conclusions.
2	Students will use peer-reviewed scientific literature effectively and evaluate technical articles critically.
3	Students will choose safe laboratory practices and responsible disposal techniques, defend safety regulations, understand and use MSDS, and respond effectively to lab emergencies.
4	Students will defend chemical information in clear, well-organized, and concise reports in a scientifically appropriate style using computerized technologies in presentations.
5	Students will work effectively in teams of diverse students to evaluate and address scientific problems while demonstrating appropriate leadership skills.
6	Students will demonstrate sensitivity to the Holy Spirit by choosing to conduct ethically responsible research with awareness of the role of chemistry in the global society.
7	Students will demonstrate knowledge of scientific principles on a pre-professional national exam appropriate to career of interest.

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Global Environmental Sustainability

#	Program Outcome
1	Equip students to understand the interdisciplinary nature of environmental issues.
2	Demonstrate applicability of environmental sustainability with companies, government agencies, or private groups.
3	Understand and apply the Biblical stewardship principles to environmental issues.
4	Develop practical skills marketable for employment.

ORU

Medical Molecular Biology

#	Program Outcome
1	Equip students to scientifically investigate biological based problems and communicate their research to the scientific community.
2	Educate students to be knowledgeable of current biological trends, concepts, and facts.
3	Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.
4	Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate health care, food insecurity, and pollution.
5	Prepare our students for entry into medical school.

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Computing & Mathematics

Applied Science

#	Program Outcome
1	Think critically about key science and/or engineering concepts.
2	Effectively communicate key science and/or engineering concepts.
3	Use the scientific method to objectively establish facts through testing and experimentation.
4	Apply observed or demonstrated truths to solve practical problems.
5	Demonstrate the ability to apply their Christian faith and worldview to their science and/or engineering knowledge to promote God's healing.

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Computer Information Technology

#	Program Outcome
1	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3	Communicate effectively in a variety of professional contexts.
4	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6	Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems

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Computer Science

#	Program Outcome
1	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3	Communicate effectively in a variety of professional contexts.
4	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
6	Apply computer science theory and software development fundamentals to produce computing-based solutions.

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Information Technology

#	Program Outcome
1	An ability to apply knowledge of computing and mathematics appropriate to the discipline.
2	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
3	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
4	An ability to function effectively on teams to accomplish a common goal.
5	An understanding of professional, ethical, legal, security and social issues and responsibilities.
6	An ability to communicate effectively with a range of audiences.
7	An ability to analyze the local and global impact of computing on individuals, organizations, and society.
8	Recognition of the need for and an ability to engage in continuing professional development.
9	An ability to use current techniques, skills, and tools necessary for computing practice.
10	An ability to use and apply current technical concepts and practices in the core information technologies.
11	An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
12	An ability to effectively integrate IT-based solutions into the user environment
13	An understanding of best practices and standards and their application
14	An ability to assist in the creation of an effective project plan.
15	An ability to solve real world problems informed by a Christian worldview.

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Master Computer Science

#	Program Outcome
1	Analyze complex computing problems and to apply principles of computing and other relevant disciplines to identify solutions.
2	Design and evaluate computing-based solutions to meet a given set of computing requirements.
3	Apply computer science theory and software development fundamentals to produce computing-based solutions.
4	Recognize professional responsibilities and make informed judgments in computing practice based on Christian worldview-based moral and ethical principles.
5	Communicate effectively in a variety of professional contexts.

Mathematical Finance

#	Program Outcome
1	Students should develop effective thinking and communication skills.
2	Students should learn to link applications and theory.
3	Students should learn to use technological tools.
4	Students should develop mathematical independence and experience open-ended inquiry.
5	Students should receive the specific training needed to go into mathematics careers and mathematics graduate programs.

Mathematics

#	Program Outcome
1	Students should develop effective thinking and communication skills.
2	Students should learn to link applications and theory.
3	Students should learn to use technological tools.
4	Students should develop mathematical independence and experience open-ended inquiry.
5	Students should receive the specific training needed to go into mathematics careers and mathematics graduate programs.

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Computer Science (Micro-credential)

	Completed Certificates
1	Data Science Certificate Outcomes
2	Fundamentals of Computer Science Certificate Outcomes
3	Fundamentals of Data Structures and Database Development Certificate Outcomes
4	Internet and Mobile Application Development Certificate Outcomes
	Additional Outcomes (CIT 402)
1	Explain the open source technologies.
2	Describe the different activities required for integrating systems.
3	Discuss technology and science innovations.
4	Develop an enterprise development application.
5	Discuss and demonstrate enterprise software and application.

Data Science (Certificate)

	CSC 201
1	Describe data collection methods, errors, biases, and licenses.
2	Understand the purpose and processes of data science.
3	Consume and clean data effectively and without prejudice.
4	Gain insights into the value of data through exploratory data analysis.
5	Gain insights into the value of data by creating data visualizations.
6	Execute classical regression techniques in Excel, R.
7	Perform basic cluster analysis in R.
8	Create machine learning predictive models in R.
9	Work effectively with real-world data from a variety of sources.
10	Effectively communicate insights, results, and recommendations.
	CSC 461
1	Extract, parse, and massage data.
2	Construct basic linear models with feature selection.
3	Create visualizations that give insights into features in a dataset.
4	Understand and utilize machine-learning techniques.
	CSC 463
1	Explain basic concepts of machine learning and classical AI.
2	Compare advantages and disadvantages of some basic AI algorithms.
3	Account for the historical development, current situation and future prospects of AI.
4	Analyze and critically discuss ethical aspects of AI.

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Fundamentals of Computer Science (Certificate)

	CSC 111
1	Possess an understanding of Computer Science and Information Science and how they related to an understanding of the world around us.
2	Possess a basic understanding of computer hardware components, the tasks they perform, and how they integrate to create a functioning computer.
3	Understand the purpose and process of algorithm development and how it translates into pseudocode and a computer program.
4	Describe data manipulated by computer programs as to type, range of values, size, and structure.
5	Implement problem solutions on a computer using a high-level programming language.
6	Possess a working knowledge of the syntax and semantics of a programming language as presented in the text and class lectures.
7	Translate the algorithms and data descriptions into correctly working programs.
8	Locate and correct errors in simple programs and test for accuracy during execution.
	CSC 206
1	Master the syntax and semantics of languages as presented in the text and class lectures.
2	Implement problem solutions on a computer using a programming language and demonstrate knowledge of the concepts of structured and object-oriented programming.
3	Understand how to construct correct and efficient algorithms.
4	Demonstrate the ability to correctly translate algorithms and data descriptions into correctly working programs.

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Fundamentals of Data Structures and Database Development (Certificate)

	CSC 255
1	Can explain the purpose and value of developing efficient structures for data storage, retrieval, and manipulation.
2	Can describe the nature of fundamental data structures and associated algorithms, including lists, stacks, queues, binary search trees (BSTs), balanced BSTs, hash tables, and graphs.
3	Can explain and implement sorting algorithms, including insertion sort, quicksort, and heapsort.
	CIT 306
1	Define the terms utilized in each area.
2	Understand and use Entity-Relationship Modeling
3	Understand the Relational Database Model and its implementation.
4	Design an appropriate database structure to solve a given problem.
5	Write programs that implement a given database design.

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Internet and Mobile Application Development (Certificate)

	CIT 352
1	Describe general mobile application design issues and considerations.
2	Understand the design of mobile applications for the Android and iOS platforms.
3	Understand how to use an IDE to develop Android and iOS mobile applications.
4	Demonstrate the ability to create mobile applications for the Android and iOS platforms.
	CSC 341
1	Build Internet Web pages.
2	Do the programming necessary to implement useful functionality behind the scenes.

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School of Engineering

Biomedical Engineering

#	Program Outcome
1	Students are able to apply knowledge of mathematics, science, and engineering.
2	Students are able to design and conduct experiments, as well as analyze and interpret data.
3	Students are able to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health
4	Students are able to function on multi-disciplinary teams.
5	Students are able to identify, formulate, and solve engineering problems.
6	Students understand professional and ethical responsibility.
7	Students are able to communicate effectively.
8	Students have a broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9	Students recognize the need for, and are able to engage in life-long learning.
10	Students have knowledge of contemporary issues.
11	Students are able to use the techniques, skills, and modern tools necessary for engineering practice.
12	Students are able to apply Christian principles of stewardship.
13	Students are able to identify, formulate and solve biomedical engineering problems.

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Engineering

#	Program Outcome
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3	An ability to communicate effectively with a range of audiences.
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
8	An ability to apply Christian principles of stewardship

Health, Leisure & Sport Sciences

Health & Exercise Science

#	Program Outcome
1	Use critical thinking skills within the content of the field of health and exercise.
2	Apply technology to test, measure, and assess physical fitness and health.
3	Apply current research findings to issues in the field of health-fitness, exercise science, and sport.
4	Design exercise programs for healthy and special populations based on ACSM guidelines.
5	Assess readiness for exercise participation by using appropriate screening and referral protocols.
	Concentration Program Outcomes
6	ES-Interpret physical fitness assessments and develop exercise prescriptions for people who are healthy or have medically controlled diseases.
6	POT-Apply problem solving and critical thinking skills to demonstrate knowledge in the field of occupational therapy.
6	PPT-Apply problem solving and critical thinking skills to demonstrate knowledge in the field of physical therapy
6	PSM-Apply problem solving and critical thinking skills to demonstrate knowledge in the field of sports medicine.

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Master of Sports Leisure Administration

#	Program Outcome
1	Knowledge: Articulates their specialized work in keeping with the knowledge base of sports and leisure management.
1.a	Knowledge: Interprets complex ideas in sports with insight and simplified language
1.b	Knowledge: Applies ethics to critical issues facing individuals and organizations in sports
2	Communication: Discusses ideas, problems, and solutions with both specialist and non-specialists, using appropriate evidence and media to sustain their arguments
2.a	Communication: Examines complex situations to isolate problems that face sport or leisure organizations
2.b	Communication: Develops appropriate solutions and methods to improve the health and performance of individuals and organizations
3	Collaboration: Takes responsibility for innovative team projects in sport and leisure contexts
3.a	Collaboration: Demonstrates ability to form teams across departments that can solve problems
3.b	Collaboration: Devises programs based on collaborative efforts with others

Sports Management

#	Program Outcome
1	Demonstrate knowledge in all areas of a sport management including: marketing, sales, sport law, accounting, and finance.
2	Demonstrate the ability to promote, advocate, interpret and articulate the concerns of leisure service systems for all populations and services.
3	Demonstrate advanced understanding of ethical considerations and social responsibility in sport and leisure administration in the United States and Globally.
4	Demonstrate professional writing and oral communication skills.
5	Appropriate professional attire, resume' and actions