ADDENDUM B

TO THE NATIONAL UNIVERSITY GENERAL **CATALOG 86**

National University
Spectrum Business Park
9388 Lightwave Ave,
San Diego, CA. 92123.

The following updates will take effect on April 1, 2024.

Technology Fees and Policy Information

Technology Fees

ART 329……$49.95

CYB 604……$78.50

CYB 641……$130.50

CYB 650……$115.50

HUB 441……$80.00

PSY 97……$100.00 Guest Speaker Fee

PSY 98……$75.00 Exam Fee

PSY 99……$75.00 Exam Fee

SCI 200A……$173.00

Policy Information

- **Accreditation/Memberships**
- **Undergraduate Basis for Admissions Policy**
- **Class Modality Policy**
- **Class Schedule Policy**
- **Credit Hour Policy**
- **Students with Disabilities**
- **Academic Information for Undergraduate Degrees**
- **Academic Information for Graduate Degrees and Credentials Admission Procedures**

Accreditation/Memberships

Since 1977, National University has been accredited by the WASC Senior College and University Commission (WSCUC).

The University is also:

- Accredited by the Association for Advancing Quality in Educator Preparation (AAQEP) for educator preparation programs.
- Approved by the California Commission on Teacher Credentialing (CTC).
- The baccalaureate degree programs in nursing and post-graduate APRN certificate programs at National University are approved by the California Board of Registered Nursing (BRN).
- The baccalaureate degree programs in nursing, master's degree programs in nursing, Doctor of Nursing Practice program, and post-graduate APRN certificate programs at National University are accredited by the Commission on Collegiate Nursing Education (http://www.ccneaccreditation.org).
- Designated as a Center of Academic Excellence in Cyber Defense Education (CAE CDE) for the Master of Science in Cybersecurity.
- Approved by the American Bar Association (ABA) for the Bachelor of Science in Paralegal Studies, Associate of Science in Paralegal Studies, and Paralegal Specialist Certificates.
- The Bachelor of Science in Electrical and Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Program Criteria.

- The Bachelor of Science in Computer Science is accredited by the Computing Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Computer Science Program Criteria.
- The National University Master of Public Health program is accredited by the Council on Education for Public Health (https://ceph.org/).
- The National University Doctor of Nurse Anesthesia Practice program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA), 10275 W. Higgins Rd., Suite 906, Rosemont, IL 60018-5603; (224) 275-9130.
- The Master of Health Administration program has received candidacy status from the Commission on Accreditation of Healthcare Management Education (CAHME), 6110 Executive Blvd., Suite 614, Rockville, MD 20852.
- Emergency Medical Technician (EMT) certification is provided through the National Registry of Emergency Medical Technicians (NREMT).
- Both the Emergency Medical Technician (EMT) certificate program and the Emergency Medical Services (EMS) continuing education program adhere to California EMS Authority Regulations and are approved by the Fresno County EMS Office and the San Diego County EMS Office.
- Certified by the Society of Human Resource Management for the Masters of Arts in Human Resource Management.
- A member of the American Association of Colleges for Teacher Education (AACTE).
- Approved to train veterans under Title 38, U.S. Code (GI Bill).
- Approved for student financial aid by the Department of Education.
- A member of the Council of Colleges of Arts and Sciences (CCAS).
- Authorized under federal law to enroll non-immigrant alien students.
- A member of the American Association of Intensive English Programs (AAIEP) through its Language Institute English Language program.
- Approved for Army, Air Force, Coast Guard, Marine Corps, Navy and U.S. government tuition assistance. Students in San Diego, Los Angeles, and Rancho Cordova who qualify may enroll in the Army or Air Force ROTC cross-enrollment programs.
- National University has received specialized accreditation for its business programs through the International Assembly for Collegiate Business Education (IACBE), located at 11374 Strang Line Road, Lenexa, Kansas, USA. For a listing of accredited programs visit: iacbe.org/memberpdf/NationalUniversity.pdf

Undergraduate Basis for Admissions Policy

NU accepts students on a continual basis. Application for admission can be submitted online any time during the calendar year via www.nu.edu. The Office of the Registrar reviews each applicant file to ensure that the prospective students meet the institutional and program-specific basis for admission requirements. Please refer to School and program sections of this catalog for program-specific admissions requirements and procedures.

All prospective students must provide the following documentation to meet basis for admission to the University:

- Official transcripts from a regionally or nationally accredited high school, high school level proficiency test, or have documented home school completion.

-OR-

- Official Associate of Arts or Associate of Science degree from a regionally or nationally accredited institution posted transcript that can be degree-verified through the National Student Clearinghouse (NSC). Except where prohibited by accreditation.

Class Modality Policy
National University (NU) differentiates between modality (i.e., where the instruction is delivered - onsite, online, hybrid), delivery method (i.e., synchronous or asynchronous instruction), and model (i.e., class-based or one-to-one). Online courses can be asynchronous or synchronous (i.e., method). Programs can only be considered online if 100% of the instructional time is online (no matter the delivery method). Internships or field experiences are NOT considered instructional time, so they would not count in the definition of modality. Courses that are fully online in instructional time but include a requirement to come onsite for orientation, final exams, labs, or tests are also still considered online due to the instructional time all being online. NU has three class modality types:

- **Onsite:** 100% of class instructional time is onsite at a designated campus (45 in-person contact hours for an undergraduate 4.5 quarter unit class, or 3 semester credit unit; and 40 in-person contact hours for graduate 4.5 quarter unit class, or 3 semester credit hour).
- **Hybrid Online:** instructional time is split between onsite and online modalities.
- **Fully Online:** 100% of course instructional time is online.

Onsite - A standard undergraduate onsite class requires 10 onsite sessions, generally consisting of 8 weekday evening sessions and two daytime Saturday sessions; a graduate onsite class requires 9 onsite sessions, consisting of 8 weekday evening sessions and one daytime Saturday session. Some programs' class schedules may vary. Please refer to the degree section of the catalog to review specific schedule information.

Hybrid - A standard hybrid class requires two 2 ½ hour weekday class sessions.

a. 4-week class – onsite sessions will be scheduled during the first and third week of the class or during the second and fourth week of the class.
b. 8-week class – onsite sessions will be scheduled during the first and fifth week of the class or the second and sixth week of the class.

**Class schedules may be adjusted as needed to accommodate the campus classroom availability. Some programs' class schedules may vary. Please refer to the degree section of the catalog to review specific schedule information.*

Online - NU's fully online courses may offer online instruction in either synchronous or asynchronous delivery methods.

- **Asynchronous:** Instruction is delivered at no set meeting time, and work is done according to the deadlines in the syllabus.
- **Synchronous:** Instruction is delivered at set dates and times.

Class Schedule Policy

Undergraduate Class Schedule

Undergraduate classes are 4.5 quarter units/3 semester credit hours, unless otherwise noted. National University offers hybrid, onsite and online modalities. All class terms begin on Mondays, except those terms when Monday is a holiday. In these cases, classes begin on Tuesday. Ending times and dates vary by program.

Hybrid Schedule
A standard hybrid class requires two 2 ½ hour evening class sessions.
4-week class – onsite sessions will be scheduled during the first and third week of the class or during the second and fourth week of the class.

8-week class – onsite sessions will be scheduled during the first and fifth week of the class or the second and sixth week of the class.

- **Contact Hours -** Hybrid undergraduate courses use a combination of in-person classes and online (asynchronous and synchronous) course requirements to meet the 45-contact hour requirement.
- **NU Facilities** - Hybrid classes offered at NU campuses are generally held in the evenings starting after 5:00pm. Some programs' class schedules may vary. Please refer to the degree section of the catalog to review specific program information.
- **Shared Community Locations & Military Base -** days and times of courses offered at a shared community location (e.g., shared space at local community colleges) and courses offered at military bases will vary depending on the availability of those sites. Students should contact their academic advisor for more information on their specific course and/or program.

Onsite Schedule

- **Contact Hours:** Onsite undergraduate classes meet for 45 contact hours.
- **NU Facilities**- most classes offered fully onsite at NU campuses are held either Monday and Wednesday or Tuesday and Thursday evenings after 5:00pm. Onsite sessions generally require 10 onsite sessions, consisting of 8 weekday sessions and two daytime Saturday sessions. A few programs may require daytime classes on different days. Please refer to the degree section of the catalog to review specific program information.
- **Shared Community Locations and Military Base-** the day and time courses offered at a shared community location (e.g., shared space at a local community college) and courses offered at military bases will vary depending on the availability of those sites. Students should contact their academic advisor for more information on their specific course and/or program.

Online Schedule

- **Contact Hours**: online undergraduate courses use online (asynchronous and synchronous) course requirements to meet the 45-contact hour requirement.

<u>Graduate Class Schedule</u>

Graduate classes are 4.5 quarter units/3 semester credit hours, unless otherwise noted. National University also offers hybrid, onsite and online modalities. All class terms begin on Mondays, except those terms when Monday is a holiday. In these cases, classes begin on Tuesday. Ending times and dates vary by program.

Hybrid Schedule

A standard hybrid class requires two 2 ½ hour evening class sessions.
4-week class – onsite sessions will be scheduled during the first and third week of the class or during the second and fourth week of the class.
8-week class – onsite sessions will be scheduled during the first and fifth week of the class or the second and sixth week of the class.

- **Contact Hours**: Hybrid graduate courses use a combination of in-person classes and online asynchronous course requirements to meet the 40-contact hour requirement.
- **NU Facilities**- Hybrid classes offered at NU campuses are generally held in the evenings starting after 5:00pm. Some programs' class schedules may vary, please refer to the degree section of the catalog to review specific program information.
- **Shared Community Locations & Military Base-** the day and time courses offered at a shared community location (e.g., shared space at a local community college) and courses offered at military bases will vary depending on the availability of those sites. Students should contact their academic advisor for more information on their specific course and/or program.

***Onsite Schedule**:*

- **Contact Hours: Onsite Graduate classes meet for 40 contact hours.**
- **NU Facilities**- in general 4- and 8-week classes offered fully onsite at NU campuses are held either Monday and Wednesday or Tuesday and Thursday evenings after 5:00pm. Onsite sessions generally require 9 onsite sessions, consisting of 8 weekday sessions and one daytime Saturday session. A few programs may require daytime (prior to 5pm) classes on different days. Please refer to the degree section of the catalog to review specific program information.
- **Shared Community Locations and Military Base-** the day and time courses offered at a shared community location (e.g., shared space at a local community college) and courses offered at military bases will vary depending on the availability of those sites. Students should contact their academic advisor for more information on their specific course and/or program.

Online Schedule

- **Contact Hours**: online graduate courses use online (asynchronous and synchronous) course requirements to meet the 40-contact hour requirement.

Credit Hour Policy

National University has a variety of degree offerings that award either semester credit hours or quarter unit credits.

Students at NU have the opportunity to enroll in programs that are onsite, online, or a hybrid combination of the onsite and online modalities. The length of the courses attached to programs will vary by the modality, degree level, and programmatic requirements.

Distance Education Courses

The online modality National University provides students is defined as distance education, which means that one or more of the technologies listed below is used to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor, either synchronously or asynchronously. The technologies may include-

- The internet;
- One-way and two-way transmissions through open broadcast, closed circuit, cable, microwave, broadband lines, fiber optics, satellite, or wireless communications devices.
- Audio conference; or
- Other media used in a course in conjunction with any of the technologies listed above.

(Department of Education - https://www2.ed.gov/admins/finaid/accred/accreditation_pg12.html)

Programs in which fifty percent (50%) or more of the coursework is delivered online shall meet the substantive change requirements related to distance education programs as established by the WASC Senior College and University Commission (WSCUC).

The following activities are examples of contact hours in the online environment but are not limited to:

a. Attending an online synchronous class, lecture, recitation, or field or laboratory activity;
b. Submitting an academic assignment;
c. Taking an assessment or an exam;
d. Participating in an interactive tutorial, webinar, or other interactive computer-assisted instruction;
e. Participating in a study group, group project, or an online discussion that is assigned by the institution; or

f. Interacting with an instructor about academic matters.

Please see the information below about course classification, credit hour/unit determination, and contact or non-contact hours of instruction at National University

Semester Credit Hours and Quarter Units

NU offers Undergraduate, Graduate, and Doctoral degrees, which use either semester credit hours or quarter units depending on the program and modality of instruction.

The University offers students the option to enroll in Undergraduate, Graduate, and Doctoral level programs in the onsite, online, and hybrid modalities.

Per WSCUC, 1 semester credit hour or quarter unit = 1 hour of classroom instruction identified as a contact hour and 2 hours of out-of-class non-contact student work each week for approximately 15 weeks for a semester or approximately 10-12 weeks for a quarter. Contact hours include but are not limited to activities such as interactions with instructors in person or online, content discussions, and working with fellow students. Non-contact hours include hours spent reading, writing papers, or creating presentations.

Semester credit hours and quarter units vary and are based on the hours of instruction for each course and the hours a student should reasonably expect to devote to preparing for each hour of instruction. Depending upon the degree level, students are generally expected to complete 10 to 15 hours in class and 20 hours of outside preparation each week.

Undergraduate Courses - Associate and Bachelor's Level

Courses in National University's Undergraduate programs are predominantly lecture-based 4.5 quarter units/3 semester credit hours or laboratory 1.5 quarter units/1 semester credit hours. Students should refer to the University catalog to verify course classification, award type, award amount, contact, and non-contact information. Please see the table below for assistance with semester credit hours and quarter unit conversions for undergraduate courses.

Graduate Courses - Master's Level

Courses in National University's Master's programs are predominantly lecture-based, seminar, or capstone 4.5 quarter units/3 semester credit hours or laboratory 1.5 quarter units/1 semester credit hours. Students should refer to the University catalog to verify course classification, award type, award amount, contact, and non-contact information. Please see the table below for assistance with semester credit hours and quarter unit conversions for graduate courses.

Graduate Courses - Doctoral Level

Courses in National University's doctoral programs are predominantly categorized as core, foundation, or dissertation 4.5 quarter units/3 semester credit hours. Students should refer to the University catalog to verify course classification, award type, award amount, contact, and non-contact information. Please see the table below for assistance with semester credit hours and quarter unit conversions for doctoral courses.

Quarter Units	Semester Credit Hours	Quarter Units	Semester Credit Hours	Quarter Units	Semester Credit Hours
0.5	0.3	4.5	3.0	8.5	5.7
1.0	0.7	5.0	3.3	9.0	6.0

1.5	1.0	5.5	3.7	9.5	6.3
2.0	1.3	6.0	4.0	10.0	6.7
2.5	1.7	6.5	4.3	10.5	7.0
3.0	2.0	7.0	4.7	11.0	7.3
3.5	2.3	7.5	5.0	11.5	7.7
4.0	2.7	8.0	5.3	12.0	8.0

Fieldwork, Internship, and Practicum Courses

Typically, at least 40 hours of internship work are assigned throughout the course of one term. However, depending on the academic program, the number of required hours may be governed or regulated by that particular program's board of accreditation (e.g., American Bar Association, American Psychological Association, Board of Registered Nursing, Department of Education, Council on Social Work Education, Commission on Accreditation for Marriage and Family Therapy Education, State Bar of California, etc.).

Practical training courses may take the form of internship, practicum, or residencies, depending on the academic discipline in which a student is enrolled. This training may be accomplished in University facilities, or approved off-campus locations, depending on the specialty being pursued. Practical training experiences require significantly more time than a regular course.

Note: Please see program for specific requirements Independent or Guided Study Programs

One unit of credit is assigned to a minimum of 30 hours of work for an undergraduate course and 36 hours for a graduate course, including discussion with faculty, time studying and doing homework or research per week throughout a four-week term. The academic reasons justifying why the subject must be pursued in the course of Independent Study must be approved by the faculty lead, the department chair, and the dean.

Students in guided study courses work independently under the guidance of an instructor, and units vary based on individualized coursework. Guided study courses that are listed for variable units must specify how unit value will be assigned. Requirements should be clearly delineated for each unit value offered.

JFK School of Law at National University Credit Information

The JFK School of Law at National University awards credit earned based on semester credit hours. Most required courses carry 3-semester credit hours. Consistent with the Rules and Guidelines of the Committee of Bar Examiners of the State of California: A "semester unit" includes at least 15 hours of verifiable academic engagement and a total of 45 hours of engagement.

Students in the JFK School of Law at National University may earn credit for verifiable academic engagement via the D2L Learning Management System, including, but not limited to, any of the following:

a. Participating in a synchronous class session;

b. Viewing and listening to recorded classes or lectures;

c. Participating in a live or recorded webinar offered by the law school;

d. Participating in any synchronous or asynchronous academic assignment in any class monitored by a faculty member;

e. Taking an examination, quiz, or timed writing assignment;

f. Completing an interactive tutorial or computer-assisted instruction;

g. Conducting legal research assigned as part of the curriculum in any class; and

h. Participating in any portion of an approved clinical or experiential class or activity offered through distance learning technology totaling no more than 12.5 percent of the hours required for graduation; and/or

i. Student participation in an experiential or clinical program where the student's participation is pre-approved, a faculty member reviews the student participation to ensure educational objectives are achieved, the amount of credit is commensurate with the time spent, and the total credit does not exceed 12.5 percent of the total hours required for graduation.

It is expected that a student taking a 3-credit course will need to spend approximately 135 to 144 hours on verifiable academic engagement and independent work/academic engagement, including reading and study; research; faculty-student interaction; demonstration of defined learning outcomes through assignments, papers, and projects; examinations; outlining; case briefing; doing practice hypotheticals and any other work necessary to ensure meeting the learning objectives. For more information on specific program requirements, please see the JD Catalog.

Periodic Review of Standard Courses and Other Academic Activities

A number of processes under the purview of the Office of the Provost contribute to the periodic review of the credit hour assignments to ensure that they are accurate and reliable:

- Course development (and re-development) checklist – a review of the credit hour policy against course syllabi and online course shells in the Learning Management Systems (LMS) (when in the online or hybrid format) is completed as part of the course development and re-development process.
- Each course provides students with a general statement of student expectations based on the degree level and modality of the course and information on specific activities required to be completed during that course.
- Five-Year Program Review – built into the Five-Year Review is a review of all course syllabi against the credit hour policy to ensure accuracy and reliability.

Students with Disabilities

It is the policy of National University, in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and other federal and state disability nondiscrimination laws, that no student shall, based on their disability, be excluded from participation in, be denied the benefits of, or otherwise be subject to discrimination under, any University program or activity.

National University is committed to providing students with disabilities an equal opportunity to access the benefits, rights, and privileges of University services, programs, and activities in the most integrated setting appropriate to the students' needs.

National University is committed to providing reasonable accommodations to students with disabilities to ensure all students have an equal opportunity to benefit from and access programs and services. "Reasonable accommodation" means a reasonable modification or adjustment that enables qualified students with disabilities equal access to programs and services.

Under the law, "reasonable accommodation" may include, but is not limited to, removal of barriers to access of the physical facilities or programs, "academic adjustments" such as modification of academic requirements, policies, and procedures, and "auxiliary aids" such as texts in alternate media, interpreters, readers, and other similar services and actions.

Student Accessibility Services cannot authorize the following:

- Extended breaks between courses or leaves of absence;
- Special funding, discounts, or waivers for course fees;
- Vocational rehabilitation funding or scholarships;
- Additional time to complete a program;
- Waivers of the University policies, including admissions, academics, or financial;
- Fundamental alterations to courses and programs that can have an impact on the essential academic requirements.

Student Accessibility Services Office

Student Accessibility Services (SAS) at National University, through collaboration with the campus and the community, is committed to empowering students with disabilities and providing equal access to higher education through the provision of academic support services, technology, and advocacy to promote student persistence and graduation. SAS provides disability consultation, coordination of support services, and accommodations for all eligible students with disabilities.

Services

SAS provides a variety of services designed to assist the National University community, including students, faculty, and staff. SAS offers services that allow students with disabilities to participate fully in all facets of the learning experience.

- Students with disabilities are equipped with tools to promote self-advocacy, independence, learning, and goal attainment.
- Faculty and staff are provided resources and guidance to assist with the creation of accessible on-site and online learning experiences that foster engagement and interaction with all students.

Requesting Accommodations and Services

National University can modify academic requirements as necessary to ensure that such requirements do not discriminate or prohibit the participation of qualified applicants or students with a disability if the modification does not fundamentally impact the course or program in which the student is participating.

Fundamental alterations can include but are not limited to, changes to curriculum and program revisions that impact accreditation or University requirements. Modifications may include changes in the length of time permitted for the completion of the degree requirements, substitution of specific courses required for the completion of degree requirements, and adaptation of the manner in which specific courses are conducted.

In course examinations or other procedures for evaluating a student's academic achievement, National University shall provide methods for evaluating the achievement of students with disabilities that impair sensory, manual, or speaking skills as will best ensure that the results of the evaluation represent the student's achievement in the course, rather than reflecting the student's impaired sensory, manual or speaking skills, except where such skills are the factors that the test purports to measure.

The University will take necessary steps to ensure that no qualified disabled student is denied the benefits of, excluded from participation in, or otherwise subjected to discrimination because of the absence of educational auxiliary aids. Auxiliary aids may include texts in alternate format, interpreters, or other effective methods of making orally delivered materials available to students with hearing impairments, readers in libraries for students with visual impairments, classroom equipment adapted for use by students with manual impairments, and other similar services and actions. Accommodations that would fundamentally alter the nature of the program, cause undue hardship on the University or jeopardize the health or safety of others cannot be provided. Reasonable accommodations must specifically address the functional limitations of the student's specific disability.

Registration

Students seeking accommodations and services due to a disability should contact SAS. A SAS Counselor will discuss potential accommodations and required documentation with the student. Students are encouraged to register with SAS and make accommodation requests as far in advance as possible; accommodations are not retroactive.

Students seeking to register with SAS are required to:

1. self-identify to SAS,
2. submit an application,
3. provide documentation of a disability from the appropriate licensed professional, and
4. participate in an interactive appointment with a SAS Counselor.

SAS will provide a letter confirming eligibility for services and detailing approved curriculum accommodations to eligible students with disabilities following the completion of the registration process. Information related to the registration process can be found at www.nu.edu/sas.

Disability Documentation

Disability documentation must be signed by a licensed physician, psychologist, audiologist, speech pathologist, physical therapist, occupational therapist, or other professional healthcare provider.

Documentation should indicate the student's current level of functioning with respect to the major life activity impacted by the disability. The diagnostic report should include, where appropriate, recommendations for specific accommodations and explain why the accommodation is recommended. In some situations, the University may request additional documentation. The cost of obtaining

professional documentation of a disability is the student's responsibility. Additional information regarding documentation is located at www.nu.edu/sas.

Accommodation Determination

SAS will consider all materials, consult with relevant faculty when necessary and afford qualifying individuals with appropriate accommodations. The student may provide additional input from an appropriate professional at the student's expense if the student or SAS deems such input necessary to determine eligibility for services or the appropriateness of a specific accommodation requested.

Once a student is approved to receive accommodation(s), a SAS Counselor will provide an accommodation letter to the student. It is the student's responsibility to present this letter to his/her instructor in a timely fashion, preferably within the first three days of the term/course, to allow sufficient time to arrange any prescribed accommodation(s). A student may or may not elect to use the accommodation(s). Students are encouraged to speak with their instructor regarding their accommodations and to review which accommodations they plan to use.

Students requesting and approved for on-site testing accommodations near an established Testing Center are required to complete a Testing Accommodations Orientation at least two weeks prior to their first exam request for in-course exams. For on-site tests, students are also required to complete an On-site Test Accommodation Request Form. Completed forms are due to SAS at least five business days prior to the exam or quiz date to allow sufficient time for the arrangement of test accommodations, including but not limited to extended test time, distraction-reduced setting, etc. In addition, students are required to read and follow the Test Accommodation Policies and Guidelines. The Testing Accommodations Orientation documents, the On-site Test Accommodation Request Form, and the Test Accommodation Policies and Guidelines are located at www.nu.edu/sas in the section entitled Accessibility Forms and Guides.

Providing advanced notice: students needing captioning and/or interpreting must request these services using the appropriate request forms located at www.nu.edu/sas. Faculty and staff are encouraged to communicate with deaf and hard-of-hearing students using electronic mail or web-based chat. If the student uses text telephone (TT) or video phone, use the California Relay Services by dialing 1-800-735-2922 (English), or 1-800-855-3000 (Spanish).

Faculty who receive a request from a student for a curriculum accommodation due to a reported disability should request an accommodation letter from the student. If the student informs the instructor that they do not have such a letter or are not registered with SAS, the faculty member should direct the student to SAS, providing them with the contact information. In addition, the instructor should contact SAS to discuss any questions or seek additional guidance. Any disability-related information that a student gives to the faculty member is to be used only for making the curriculum accessible for the student and may not be disclosed to any parties without written consent from the student. Instructors are not authorized to deny a student an approved accommodation unilaterally. Instructors who disagree with a particular accommodation prescribed for a student and included on the official accommodation letter should contact SAS for immediate consultation and discussion.

If a student would like to request additional accommodations, additional documentation and an additional interactive appointment may be requested.

Modality

National University (NU) offers classes in two possible instructional modalities: a one-to-one model and a class-based model. In a one-to-one model course, each student is assigned to a professor who will work individually with that student throughout the course. Courses generally begin each Monday. In a class- based model, multiple students are assigned to start the course simultaneously with one

professor, often involving discussion boards or other student-to-student interactions. These courses begin monthly at the designated time of the course calendar.

As a unified department, a standardized accommodation approach will be adopted for all new students. Students who were previously enrolled in a one-to-one model through NCU will be offered the opportunity to remain in their one-to-one model through their program completion or merge into a class-based model, with the understanding that once they move, they will not be able to switch between modalities after that selection. Students offered the option to remain in their one-to-one model or change to a class-based model will understand that their accommodations will reflect the model in which they are enrolled.

Students who choose to remain in a one-to-one model will be offered an opportunity to revise their accommodations or maintain their current approvals. If the standardized approach negatively affects their academic progress, they will be granted a one-time offering to return to their NCU legacy accommodations. Once selected, one-to-one students understand that their accommodations will remain as is until they complete their program or transfer to a class-based model. Students who transfer to a class-based model understand that there is a possibility of a change in accommodations to reflect the change in course modality. Accommodation approval will remain an individualized process dependent on the student's diagnosis and documentation. Students who transfer to a class-based model will meet with a SAS Accommodation Counselor to review their accommodations and discuss any changes that may be necessary.

All inquiries regarding accommodations for either modality should be directed to SAS at sas@nu.edu.

Denial or Insufficiency of Accommodation

If a student is denied an accommodation or believes that the accommodation approved is insufficient, the student may appeal to the Vice President of Student Services (VPSS), who will render a decision within seven days of receipt of the appeal or before the start date of the next course, depending on which occurs first. The decision of the VPSS is final.

Problems in Receiving Approved Accommodations

If a student believes they are not receiving an accommodation specified in their letter, they should immediately contact SAS for assistance at sas@nu.edu.

Confidentiality

SAS is committed to ensuring all information and communication about a student's disability is maintained as confidential as required and/or permitted by local, state, and federal laws and regulations. To that end, the following guidelines govern the use and disclosure of information shared with the SAS office staff.

1. This information is protected by the Family Educational Rights and Privacy Act (FERPA). All records received and kept by SAS are considered educational records. All documentation is kept in secure electronic files, and immediate access is limited to the SAS staff and managers.
2. Personally identifiable information will not be disclosed to persons outside the University without the express written permission of the student, except in accordance with local, state, and federal laws or pursuant to a court order or subpoena.

3. Personally identifiable information will be shared with other University employees, faculty, and other officials only when the requestor maintains a legitimate educational interest. In such a case, the SAS staff will disclose only information pertinent to the request and in the student's best interest.
4. If a student wishes to have information about their disability shared with others outside of the institution, the student must provide written authorization to SAS at sas@nu.edu to release the information.
5. A student has the right to review their own SAS file with reasonable notification. Any student wishing to review their records should contact SAS at sas@nu.edu.

Student Accessibility Services

Phone: 858.521.3967

Email: sas@nu.edu

Web: http://www.nu.edu/sas

Students Who Believe They Have Been Subject to Discrimination Based on their Disability

National University students and employees (including the SAS office staff) abide by the Equal Opportunity, Harassment and Nondiscrimination Policy, as found on the NU website and in the General Catalog.

It is our sincere hope that no member of our community experiences discrimination, harassment, misconduct, or violence based on their actual or perceived membership in a protected category. If that has occurred, please know that any person may file an informational report (whether or not the person reporting is alleged to have experienced the conduct). A report may be made at any time (including during non- business hours) by choosing the appropriate reporting form at this link: www.nu.edu/reportit, or in person, by mail, by telephone, by video, or by email, using the contact information listed below for the Title IX Coordinator & ADA/504 Coordinator.

Title IX Coordinator & ADA/504 Coordinator Heather Tyrrell, Director, Institutional Equity Office of Institutional Equity

9388 Lightwave Ave.

San Diego, CA 92123 Telephone: (858) 640-8087

Office Email: oie@nu.edu Email: htyrrell@nu.edu

Academic Information for Undergraduate Degrees

Honor Societies (Class-Based) All Schools

Golden Key International Honor Society (GK)

Golden Key is the world's largest collegiate honor society for undergraduate and graduate students. Participation in the society is open to all academic disciplines. Membership is by invitation only and is sent to eligible students on a periodic basis.

For more information about Golden Key, visit www.goldenkey.org. Students who have not received a membership invitation but believe they meet the University's academic eligibility criteria can submit an online application at https://goldenkey.org/golden-key-eligibility for review.

Honors Fellows for Social Change

The Honors Fellows for Social Change is a highly selective honors program comprised of students who show the potential to utilize their degree to make positive social change in their communities of choice. Students are admitted to the program based on a rigorous application process that includes video testimonials and writing samples that illustrate the student's capacity to connect their educational goals to further advancing the public good.

National Society of Leadership Success (NSLS)

The National Society of Leadership and Success is the nation's largest leadership honor society. Candidacy is a nationally recognized achievement of honorable distinction. Participation in the society is open to all undergraduate and graduate level majors based on GPA and number of courses completed. Lifetime membership benefits include: an accredited leadership development program, free admission to live broadcasts of speakers from leading organizations as well as a presidential series, opportunities for scholarships and building a professional network, access to a job bank, letter of recommendation, and more.

For more information about National Society of Leadership Success, visit: http://www.nsls.org.

Phi Chapter Omega Nu Lambda Honor Society

Phi Chapter Omega Nu Lambda (ONL) is the only national collegiate honor society exclusive to online students. ONL strives to help make online education a better experience by acknowledging academic achievement, rewarding online experience by offering scholarship opportunities, and creating environments that promote connectivity among other ONL members throughout the United States.

For more information about Phi Chapter Omega Nu Lambda, visit https://www.omeganulambda.org or contact ONL@nu.edu.

SALUTE Veterans National Honor Society

SALUTE is a national academic honor society recognizing the service and scholastic achievements of student veterans and active-duty military in higher education.

For more information about SALUTE, please contact the Veteran Center at veterancenter@nu.edu.

Sanford College of Education

Pi Lambda Theta Honor Society

Pi Lambda Theta is the international honor society and professional association for students in the field of education. The dean of the Sanford College of Education nominates students to Pi Lambda Theta who have met rigorous requirements. Membership in this honor society offers students access to scholarships, research grants, career support, and leadership conferences, as well as support from the

National Board of Professional Teacher Standards. A gold cord worn during commencement exercises designates Pi Lambda Theta graduates.

For more information about Pi Lambda Theta, visit https://pilambda.org/.

School of Business and Economics

Sigma Beta Delta Honor Society

Sigma Beta Delta is an honor society for students of business, management, or administration who are pursuing bachelor's or master's degrees. The society characterizes itself by three principles; wisdom, honor, and the pursuit of meaningful aspirations. It recognizes these qualities as being important for success in the academic realm as well as providing guidelines which lead to a fulfilling personal and professional life and a life distinguished by honorable service to humankind.

For more information about Sigma Beta Delta, visit: https://sigmabetadelta.org/.

School of Health Professions

Sigma Theta Tau International (STTI) Omega Omega Chapter 574

The mission is to develop nurses' leaders to improve healthcare everywhere. Students who qualify from Undergraduate and Graduate level Nursing Programs are invited to join this international community of nurses. These nurse leaders are dedicated to the advancement of knowledge, teaching, learning, and service through the cultivation of communities of practice, education, and research.

For more information about Sigma Theta Tau International Omega Omega , visit; https://www.sigmanursing.org/.

Upsilon Phi Delta (UPD)

Applicable for students enrolled in the Bachelor of Science in Healthcare Administration (BSHA) and the Master of Health Administration (MHA) Program in the School of Health Professions. Upsilon Phi Delta is an honor society only open to programs who hold membership with the Association of University Programs in Health Administration (AUPHA). Invitation to the student is offered by the School of Health Professions.

Membership Benefits include lifetime recognition of outstanding academic achievement, scholarship program, lifetime contact through national networking, and other benefits.

For more information about Upsilon Phi Delta, visit; http://www.aupha.org/main/resourcecenter/currentstudents/honorsociety.

School of Arts, Letters, and Sciences

Alpha Kappa Delta International Sociology Honor Society

Alpha Kappa Delta seeks to acknowledge and promote excellence in scholarship in the study of sociology, the research of social problems, and such other social and intellectual activities as will lead to improvement in the human condition. Alpha Kappa Delta is a non-secret, democratic, international society of scholars dedicated to the ideal of Athropon Katamannthanein Diakonesin or "to investigate

humanity for the purpose of service." At commencement, membership in Alpha Kappa Delta is signified by the wearing of a teal honor cord.

For more information about Alpha Kappa Delta, visit: https://alphakappadelta.org/.

Psi Chi Honor Society

Psi Chi is an international honor society whose purpose is to encourage, stimulate, and maintain excellence in scholarship of the individual members in all fields, particularly in psychology, and to advance the science of psychology. Undergraduate and graduate students accepted for membership in Psi Chi are recognized for their academic achievement and devotion to the field of psychology. Psi Chi is a member of the Association of College Honor Societies and is an affiliate of the American Psychological Association (APA) and the Association for Psychological Science (APS). Nominees can be identified by the platinum and blue cord they wear during the ceremony.

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Sigma Tau Delta, International English Honor Society

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For more information about Sigma Tau Delta, visit: https://www.english.org.

JFK School of Law at National University

Alpha Phi Sigma (APS)

The Mission of Alpha Phi Sigma is to promote analytical thinking, rigorous scholarship, and lifelong learning; to keep abreast of the advances in scientific research; to elevate the ethical standards of the criminal justice profession and to sustain in the public mind the benefit and necessity of education and professional training.

Alpha Phi Sigma recognizes academic excellence of undergraduate and graduate students of Criminal Justice and related disciplines. Alpha Phi Sigma is the only Criminal Justice Honor Society that is a certified member of the Association of College Honor Societies and is affiliated with the Academy of Criminal Justice Sciences.

For more information about Alpha Phi Sigma, visit; https://alphaphisigma.org/.

Lambda Epsilon Chi Honor Society

Lambda Epsilon Chi (LEX) is a National Honor Society for students of Paralegal Studies/Legal Studies. The purpose of the JFK School of Law at National University Chapter of LEX is to recognize persons who have demonstrated superior academic performance in an established program of paralegal studies/legal studies in which they earn a Paralegal Certificate.

Order of the Sword and Shield Honor Society

The Order of the Sword and Shield is the first and only academic and professional honor society dedicated exclusively to homeland security, intelligence, emergency management, cyber and information security, and all protective security disciplines. The mission of the Society shall be to promote critical thinking, high scholarship and professional development; to further enhance the ethical standards of the protective security professions; and to cultivate a high order of personal living.

For more information about the Order of the Sword and Shield, visit; https://www.securityhonorsociety.org/.

Academic Information for Graduate Degrees and Credentials Admission Procedures

Honor Societies (Class-Based)

All Schools

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For more information about Sigma Beta Delta, visit: https://sigmabetadelta.org/.

School of Health Professions

Delta Omega Honor Society

Delta Omega is a national honorary society comprised of CEPH-accredited programs and schools of public health. Delta Omega exists to encourage research and scholarship among graduate students of public health and to recognize attainment and achievement in the field of public health. With over 50 active chapters, Delta Omega and its members are dedicated to ensuring the quality of the field of public health and to the protection and advancement of the health of all people. National University founded the Gamma Psi chapter of Delta Omega in 2013 and has inducted 116 graduates, alumni, faculty, and community members.

For more information about Delta Omega, visit; https://deltaomega.org/.

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For more information about the Order of the Sword and Shield, visit; https://www.securityhonorsociety.org/.

Phi Alpha Delta Fraternity

Phi Alpha Delta (PAD) is dedicated to serving the student, school, profession, and community. This International Law Fraternity is the largest professional law fraternity in the United States. Through its devotion to the ideals of compassion, courage, diversity, innovation, integrity, professionalism, and service, its mission is to better both the legal profession and the community. Pre-law members with a 3.5 GPA and law student members in the top third of their class are eligible to join PAD's Society of Scholars.

For more information about Phi Alpha Delta, visit; https://www.pad.org/page/SocietyOfScholars.

Program Terminations

Class-Based

Concentration in Health Informatics (associated with the Active Bachelor of Arts in Allied Health)
Graduate Certificate in Health Informatics

Course Terminations

Class-Based

BIM 600 - Human-Computer Interaction
BIM 606 - Info Mgmt for Leaders
BIM 610 - Strategic Decision Systems
MKT 660 - Strategic Marketing Simulation
EDD 845 - Culminating Project Support

1:1

ID-8200 - Advanced Instructional Design
ID-8020 - Mdls & Hristcs of Instrct Dsgn
ID-7040 - Development Models & Eval Dsgn
ID-8250 - Adv Sim, Games & Mobile Design
ID-8060 - Innovation in LE
ID-7080 - Spec Concerns for the ID Lead
ID-8030 - Collab in Dsgn Prctcs & Prdcts
ID-8040 - Eval of Design Process & Prod
ID-8080 - Consider in Practice of ID
ID-7020 - Lead & Manage Complex Dsgn Proj
ID-8210 - Theoretical Foundations of Instructional Design
MSW 6006 - Leadership in SW Practice
TIM 7010 v5 - Mgmt of Computer Networks
TIM 7030 v4 - Mgmt Risk/Sec/Privacy Systems
TIM 8121 v2 - Dist Algorithms & PAR Comp
TIM 8130 v5 - Data Curation

Degree Information

Undergraduate Degrees

Class-Based

Bachelor of Science in Allied Health

Academic Program Director: Ricardo Parker; rparker2@nu.edu

The Allied Health profession refers to occupations that support, aid, and increase the efficiency of the Physician, Dentist, or Primary Healthcare Specialist. Allied Health Professionals are involved with the delivery of health or related services pertaining to the identification, evaluation, and prevention of diseases and disorders; dietary and nutrition services; rehabilitation and Health Systems Management. The Bachelor of Science Major in Allied Health Degree program provides a broad-based foundation in global and national healthcare issues and trends, ethical and legal issues, health promotion and disease prevention, evidence-based practice, Allied Healthcare Research, Healthcare Systems Management, and Healthcare-Based Informatics. The program is designed to articulate with Associate of Arts Allied Health related Degree programs at Community Colleges. It prepares graduates with additional knowledge, skills, and values to advance in the Allied Health profession; meet societal and healthcare delivery demands; and work in a variety of settings with diverse patients, families, and communities. Graduates are prepared to assume supervisory, management, and/or educational positions. In addition, successful completion of this program allows students to pursue Graduate Education in the Healthcare Field.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Assess the relative health effects of environment, socioeconomic conditions, behavior, health services, and biology.
- Explain how a team approach that is coordinated, comprehensive and continuous facilitates successful treatment outcomes.
- Compare and contrast a medical model of healthcare delivery with a health promotion and disease prevention approach.
- Explain the process of active participation in healthcare from a provider, patient, family, and community perspective.
- Assess the impact of effective and ineffective applications of technology in Health Services.
- Analyze health services from social, workforce, financial, regulatory, technological, and organizational viewpoints.
- Commit to a code of professional ethics when providing services to clients, families, and communities under all circumstances.
- Utilize culturally competent strategies and practices that respect the cultural, social, religious, racial, and ethnic diversity of the patient and family regarding disease and their health.

Degree Requirements:

To receive a Bachelor of Science degree with a Major in Allied Health, students must complete at least 180 quarter units as articulated below, 45 of which must be completed in residence at National University, 76.5 of which must be completed at the upper-division level, and a minimum of 69 units of the University General Education requirements. In the absence of transfer credit, additional general electives may be necessary to satisfy the total units for the degree. The following courses are specific degree requirements. Refer to the section on Undergraduate Admission procedures for specific information regarding admission and evaluation.

Requirements for the Major (10 courses; 45 quarter units)

HSC 310	Issues & Trends in Healthcare	4.50
BST 322	Intro to Biomedical Statistics	4.50

GER 310	Healthy Aging	4.50
HSC 400	Mgmt for Health Professionals	4.50
HSC 300	Legal/Ethical Issues & Health	4.50
HSC 330	Health Education & Promotion	4.50
HSC 410	Informatics for Health Profs	4.50
HSC 420	Healthcare Research	4.50
HSC 430	Case and Outcomes Management	4.50
HSC 440	Allied Health Capstone Project ***Prerequisite:*** *Completion of the major requirements*	4.50

Students must complete 6 upper-division electives.
Upper-Division Electives (6 courses; 27 quarter units)

Students must complete a minimum of 27 quarter units (6 courses) of electives to fulfill the upper-division unit requirements for the Bachelor of Science in Allied Health. The following are strongly recommended.

HTM 520	Health Information Exchange	4.50
HTM 552	EHR Meaningful Use	4.50
HTM 460	Health IT Virtual Simulation ***Prerequisite:*** *HSC 410 with a minimum grade of C.*	4.50
COH 320	Chronic & Communicable Disease ***Prerequisite:*** *ILR 260*	4.50
COH 310	Culture and Health ***Prerequisite:*** *ILR 260*	4.50
COH 321	Theories of Health Behavior ***Prerequisite:*** *ILR 260*	4.50
BIO 305	Genetics ***Prerequisite:*** *BIO 100 and CHE 101, or BIO 162 and CHE 142*	4.50
HTM 310	Health Informatics	4.50
HCA 402	Intro to HA QA Management	4.50
CIS 301	Mgmt Information Systems	4.50

Bachelor of Science in Biology

Status: *Historical-Review all addendums*
Academic Program Director: Michael Maxwell; mmaxwell@nu.edu

The Bachelor of Science in Biology offers personal and academic fulfillment and growth as students discover the amazing world of biology. This degree prepares students for graduate and professional study, careers in life science education, research, health sciences, and applied biology. The BS Biology provides a solid foundation in all levels of biological organization, from molecules to ecosystems. Such a comprehensive curriculum is crucial to meeting modern challenges in science, which include new and emerging diseases, rapid advances in our understanding of genetics, physiology and biodiversity, threats to species and ecosystem functioning, and global population increase and sustainability. A degree in biology is common preparation for careers in the various medical professions, genetics, molecular and cell biology, biotechnology, microbiology, conservation biology, evolutionary biology, ecology, animal and plant science, as well as science writing, editing and education.

Students who wish to include an interdisciplinary approach to their academic training should look closely at the benefits provided by this major. In addition to meeting requirements for BS Biology, this degree allows for the integration of study in the life sciences with coursework in the physical and earth sciences, as well as applied fields such as forensics. Furthermore, in keeping with the commitment of the College of Letters and Sciences to the complete academic development of its students, science courses involve writing and diversity components, as well as fundamental critical thinking components.

Bachelor of Science in Biology to Master of Forensic Science Transition Program

The BS Biology to MFS transition program allows students who are enrolled in the BS Biology with a cumulative grade point average of at least 3.0 and who are within completing their last six courses to register for two courses in the MFS program as electives for the bachelor's degree. Students may choose from the following courses: FSC 630, FSC 633, FSC634, FSC 635 or FSC 642. The two graduate courses are restricted to those that do not require a prerequisite. Students must complete all transition program coursework with a grade of B or better. The number of courses required to earn an MFS degree for transition program students is reduced from 12 to as few as 10 courses. Graduate-level coursework taken as part of the Biology program cannot be applied as graduate credit to the Master of Forensic Science program, nor will it transfer as graduate level credit to any other university because it becomes part of the undergraduate degree program. Students must enroll in and complete the first class in the Master's degree within 6 months of the conferral date of their undergraduate degree. The MFS program must be completed within 4 years with no break in enrollment of 12 months or more. Further rules and requirements for Transition programs are located in the university catalog.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Discuss biological processes at all levels of organization: molecular, cellular and microbial, organismal, population, and ecosystem.
- Explain the importance of unifying concepts in biology, including cell theory, genetics, and evolution.
- Describe the structure and function of Earth's organisms, as well as their roles in the natural world.
- Apply the scientific method in laboratory-based and field-based inquiry.
- Demonstrate effective oral, visual, and written communication and quantitative skills, including the critical analysis of data and scientific literature.
- Demonstrate computer and technology literacy, including the ability to access databases within the context of course research and project development.
- Evaluate historical developments and research in biology, as well as current and contemporary research and challenges.

Degree Requirements:

To receive a Bachelor of Science, Major in Biology, students must complete at least 180 quarter units as articulated below, 45 of which must be completed in residence at National University, 76.5 of which must be completed at the upper division level, and a minimum 69 units of the University General Education requirements. In the absence of transfer credit, additional general electives may be necessary to satisfy total units for the degree. Refer to the section on undergraduate admission requirements for specific information regarding admission and evaluation.

***** Completion of BIO 100, 100A, 201, 201A, 202, 202A, 203, 203A is equivalent to the course sequence BIO 161, 162, 163, 169A for fulfillment of the BS Biology degree.

Preparation for the Major (17 courses; 61.5 quarter units)

MTH 210	Probability and Statistics* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50
MTH 216A	College Algebra I* *Discontinued* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	3.00
AND MTH 216B	College Algebra II* *Discontinued* ***Prerequisite:*** *MTH 216A*	3.00
CHE 141	General Chemistry 1* *Historical-Review all addendums*	4.50

	Prerequisite: *MTH 215, or MTH 216A and MTH 216B*	
CHE 142	General Chemistry 2* *Historical-Review all addendums* ***Prerequisite:*** *CHE 141*	4.50
CHE 143	General Chemistry 3* *Historical-Review all addendums* ***Corequisite:*** *CHE 149A;* ***Prerequisite:*** *CHE 142*	4.50
BIO 161	General Biology 1*	4.50
BIO 162	General Biology 2* ***Prerequisite:*** *BIO 161*	4.50
BIO 163	General Biology 3* *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162*	4.50
PHS 171	General Physics 1* *Historical-Review all addendums* ***Prerequisite:*** *MTH 216A and MTH 216B*	4.50
PHS 172	General Physics 2* *Historical-Review all addendums* ***Prerequisite:*** *PHS 171*	4.50
PHS 173	General Physics 3* *Historical-Review all addendums* ***Corequisite:*** *PHS 179A;* ***Prerequisite:*** *PHS 171; PHS 172*	4.50
CHE 150	Introductory Organic Chemistry *Historical-Review all addendums* ***Prerequisite:*** *CHE 101 and CHE 101A, or CHE 141 and CHE 142 and CHE 143 and CHE 149A; Prerequisites for this course are NOT required for BSCLS students.*	4.50
CHE 150A	Introductory Organic Chem Lab *Historical-Review all addendums* ***Prerequisite:*** *CHE 150 with a minimum grade of C-. A student must have passed the lecture to take the lab.*	1.50
BIO 169A	General Biology Lab *Historical-Review all addendums* ***Prerequisite:*** *BIO 163; BIO 161; BIO 162*	1.50
CHE 149A	General Chemistry Laboratory *Historical-Review all addendums* ***Corequisite:*** *CHE 143*	1.50
PHS 179A	General Physics Lab *Historical-Review all addendums* ***Prerequisite:*** *PHS 171 and PHS 172 and* ***Corequisite:*** *PHS 173, or PHS 104*	1.50

*May be used to meet General Education requirements

Requirements for the Major (12 courses; 42 quarter units)

BIO 330	Ecology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*	4.50
BIO 305	Genetics *Historical-Review all addendums* ***Prerequisite:*** *BIO 100 and CHE 101, or BIO 162 and CHE 142*	4.50
BIO 310	Evolution *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A*	4.50
BIO 406	Cellular Biology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 406A*	4.50
BIO 406A	Cellular Biology Lab *Historical-Review all addendums* ***Corequisite:*** *BIO 406;* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*	1.50
BIO 407	Molecular Biology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 407A;* ***Prerequisite:*** *BIO 305*	4.50
BIO 407A	Molecular Biology Lab *Historical-Review all addendums* ***Corequisite:*** *BIO 407;* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A; BIO 305*	1.50

BIO 414	Invertebrate Zoology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 414A*	4.50
BIO 414A	Invertebrate Zoology Lab *Historical-Review all addendums* ***Corequisite:*** *BIO 414*	1.50
BIO 416	Vertebrate Zoology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 416A*	4.50
BIO 416A	Vertebrate Zoology Laboratory *Historical-Review all addendums* ***Corequisite:*** *BIO 416*	1.50
BIO 485	Contemporary Topics in Biology *Historical-Review all addendums* ***Prerequisite:*** *BIO 305, or BIO 310, or BIO 330*	4.50

Upper-Division Electives (7 courses; 31.5 quarter units)

Students may select only 300, 400, or 500 level in the School of Arts, Letters, & Sciences to complete the total of 76.5 quarter units of upper division for the degree. Suggested upper-division courses are given below.

BIO 420	Animal Behavior *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 100A*	4.50
BIO 430	Immunology *Historical-Review all addendums* ***Recommended Preparation:*** *BIO 203, or BIO 406, or equivalent courses.*	4.50
BIO 440	Botany *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*	4.50
BIO 450	Natural History of California *Historical-Review all addendums* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 100A, or BIO 100; BIO 100A*	4.50
BIO 460	Marine Biology *Historical-Review all addendums* ***Prerequisite:*** *BIO 161 with a minimum grade of C. Student must have taken General Biology or equivalent ; BIO 162 with a minimum grade of C. Student must have taken General Biology or equivalent ; BIO 163 with a minimum grade of C. Student must have taken General Biology or equivalent*	4.50
BIO 461	Marine Biology Field Studies** ***Recommended Preparation:*** *BIO 162 with a minimum grade of C. Student must have a grade of C or higher*	4.50
BIO 470	Bioinformatics *Historical-Review all addendums* ***Corequisite:*** *BIO 470A;* ***Prerequisite:*** *BIO 161 with a minimum grade of C-. Student must have passed the class with a C- or better; BIO 162 with a minimum grade of C-. Student must have passed the class with a C- or better; BIO 163 with a minimum grade of C-. Student must have passed the class with a C- or better*	4.50
BIO 470A	Bioinformatics Lab ***Corequisite:*** *BIO 470*	1.50
BIO 480	Studies in Biology	4.50
CHE 350	Organic Chemistry I *Historical-Review all addendums* ***Corequisite:*** *CHE 350A;* ***Prerequisite:*** *CHE 142*	4.50
CHE 350A	Organic Chemistry I Lab *Discontinued* ***Corequisite:*** *CHE 350 Minimum C*	1.50
CHE 351	Organic Chemistry II *Historical-Review all addendums* ***Corequisite:*** *CHE 351A;* ***Prerequisite:*** *CHE 350*	4.50
CHE 351A	Organic Chemistry II Lab *Discontinued* ***Corequisite:*** *CHE 351 Minimum C*	1.50

CHE 360	Biochemistry I *Historical-Review all addendums* ***Prerequisite:*** *CHE 350; CHE 350A; CHE 351*	4.50
CHE 361	Biochemistry II *Historical-Review all addendums* ***Prerequisite:*** *CHE 360*	4.50
EES 322	Oceanography	4.50
MTH 317	Mathematical Modeling *Historical-Review all addendums* ***Prerequisite:*** *MTH 210; MTH 215, or MTH 216A and MTH 216B*	4.50
SCI 303	GIS: Geographic Info Systems	4.50
SCI 490	Guided Study	0.50

**Enrollment in this course requires Instructor's permission

Bachelor of Science in Computer Science

Status: *Historical-Review all addendums*
Academic Program Director: Alireza Farahani; afarahan@nu.edu

The Bachelor of Science in Computer Science Degree program provides a strong technical background for students planning to begin careers upon graduation and for those interested in Graduate Studies in Computer Science. Degree Requirements include: courses in Object Oriented Programming, Data Structures and Algorithms, Operating Systems, Computer Communication Networks, Software Engineering, and Computer Architecture, as well as Mathematics, Statistics, and the Natural Sciences. The program features a rigorous academic foundation that is complemented by realistic programming assignments. Emphasis is placed on developing both the technical and design skills necessary to begin and enhance an individual's career. Graduates of this program are well prepared for immediate employment in either the computer industry or many other businesses that increasingly rely on computer science.

The Bachelor of Science in Computer Science Program Educational Objectives are as follows.

Within a few years of graduation, graduates are expected to be:

- Engaged and active as responsible professionals pursuing diverse career paths or successfully continuing their education in graduate school;
- Participating in continuing education opportunities enabling them to understand and apply new ideas and technologies in the field of computing;
- Effective communicators and team members;
- Active contributors to their community and their profession.

Bachelor of Science in Computer Science/Master of Science in Computer Science (BSCS/MSCS) Transition Program

Students must complete graduate-level coursework taken as part of the BSCS degree with a grade of B or better. This coursework, which counts as electives, will not transfer as graduate-level credit to National University or any other institution as it is part of an undergraduate degree program. Grades earned in graduate level courses will be calculated as part of the student's undergraduate grade point average. Students must be within completing their last six courses in their undergraduate program and have a cumulative GPA of at least 3.00 to be eligible. Lastly, students must apply for and begin the MSCS program within six months after completing their final BSCS course. Students must complete their MSCS program within four years with no break exceeding 12 months. Students may choose up to two (2) courses from the following course list: CSC 603 and CSC 605. The number of courses required to earn an MSCS degree for transition program students will be reduced from 13 to as few as 11, depending on the number of graduate classes completed within the BSCS with a grade of B or better.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

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

Degree Requirements:

To receive a Bachelor of Science in Computer Science, students must complete at least 180 quarter units to include a minimum of 69 units of the University General Education requirements; 76.5 quarter units must be completed at the upper-division level, and 45, including the senior project courses (CSC 480A, CSC 480B & CSC 480C), must be taken in residence at National University. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the Degree. Students should refer to the section on Undergraduate Admission procedures for specific information on admission and evaluation.

Prerequisites for the Major (10 -12 courses; 42 - 48 quarter units)

Students must select one (1) Science related Lecture and one (1) Lab Course from Area F of the General Education for a total of 6 quarter units. The Course/Lab combination must be intended for Science and Engineering majors and develop an understanding of the Scientific Method (PHS104 and PHS104A or PHS130A are recommended).

MTH 215	College Algebra & Trigonometry* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50
OR		
MTH 216A	College Algebra I *Discontinued* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	3.00
AND MTH 216B	College Algebra II *Discontinued* ***Prerequisite:*** *MTH 216A*	3.00
CSC 208	Calculus for Comp. Science I* *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CSC 242	Intro to Programming Concepts* *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CSC 209	Calculus for Comp. Science II *Historical-Review all addendums* ***Prerequisite:*** *CSC 208*	4.50
CSC 252	Programming in C++* *Historical-Review all addendums* ***Prerequisite:*** *CSC 242*	4.50
CSC 262	Programming in JAVA* *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CSC 220	Applied Probability & Stats. *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or MTH 220; EGR 220*	4.50
CSC 272	Advanced Programming in Java *Historical-Review all addendums*	4.50

	Prerequisite: *CSC 262*	

* May be used to meet a General Education requirement.

Requirements for the Major (17 courses; 73.5 quarter units)

Students may take courses in any order if course prerequisites are satisfied.

CSC 310	Linear Algebra and Matrix Comp *Historical-Review all addendums* ***Prerequisite:*** *CSC 252, or CSC 272*	4.50
CSC 331	Discrete Structures and Logic *Historical-Review all addendums* ***Prerequisite:*** *CSC 252, or CSC 272*	4.50
EGR 320	Scientific Problem Solving *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or EGR 220*	4.50
CSC 300	Object Oriented Design *Historical-Review all addendums* ***Prerequisite:*** *CSC 252, or CSC 272*	4.50
CSC 335	Data Structures and Algorithms *Historical-Review all addendums* ***Prerequisite:*** *CSC 300; CSC 331*	4.50
CSC 350	Computer Ethics	4.50
CSC 340	Digital Logic Design *Historical-Review all addendums* ***Prerequisite:*** *CSC 331;* ***Corequisite:*** *CSC 340L*	4.50
CSC 340L	Digital Logic Design Lab *Historical-Review all addendums* ***Prerequisite:*** *CSC 331;* ***Corequisite:*** *CSC 340*	1.50
CSC 338	Algorithm Design ***Prerequisite:*** *CSC 335*	4.50
CSC 342	Computer Architecture *Historical-Review all addendums* ***Prerequisite:*** *CSC 340 and CSC 340L*	4.50
CSC 400	OS Theory and Design ***Prerequisite:*** *CSC 335*	4.50
CSC 422	Database Design ***Prerequisite:*** *CSC 300*	4.50
CSC 436	Comp. Communication Networks *Historical-Review all addendums* ***Prerequisite:*** *CSC 331*	4.50
CSC 430	Programming Languages ***Prerequisite:*** *CSC 300*	4.50
CSC 480A	Computer Science Project I ***Prerequisite:*** *Completion of requirements for the major and electives or permission of the program director.*	4.50
CSC 480B	Computer Science Project II ***Prerequisite:*** *CSC 480A*	4.50
CSC 480C	Computer Science Project III ***Prerequisite:*** *CSC 480B*	4.50

Approved Electives (4 courses; 18 quarter units)

The program requires 4 Upper Division Technical Electives. Students may customize and select four courses from the approved list below.

CSC 441	Web App Development ***Prerequisite:*** *CSC 300 and CSC 422*	4.50
CSC 443	Mobile App Development ***Prerequisite:*** *CSC 300 and CSC 422*	4.50

CSC 447	Software Testing & Automation ***Prerequisite:*** *CSC 300*	4.50
CSC 449	Software Engineering ***Prerequisite:*** *CSC 300 and CSC 422*	4.50
CSC 450	Artificial Intelligence ***Prerequisite:*** *CSC 335*	4.50
CIS 301	Mgmt Information Systems	4.50
CIS 310	Technology Project Management	4.50
CIS 320	Systems Analysis & Integration ***Prerequisite:*** *CIS 301*	4.50
CIS 475	Big Data and Cloud Computing ***Prerequisite:*** *CSC 422*	4.50
CIS 430	Web/EB Design & Development ***Prerequisite:*** *CIS 350*	4.50
CYB 331	Secure Linux System Admin ***Prerequisite:*** *CYB 216*	4.50
CYB 332	Secure Windows Administration ***Prerequisite:*** *CYB 331*	4.50
CYB 333	Security Automation ***Prerequisite:*** *CYB 332*	4.50

Students may select other courses as electives outside this list with approval from the CS Program Director.

Concentration in Software Development

Academic Program Director: Alireza Farahani; afarahan@nu.edu

This concentration builds student proficiency in design, implementation, testing, and management of large-scale, secure software systems. It covers the concepts and skills in constructing software from inception to deployment, using current industry practices and tools. The concentration examines processes and activities that go into each stage of the Software Development Lifecycle. The focus is on Web and Mobile Application Design, development tools, frameworks, and testing strategies.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Describe, evaluate, and implement the processes and activities that go into engineering and building software systems.
- Design, develop, modify, and deploy software systems using relevant tools and technologies.
- Develop software testing plans and conduct automated software testing.

Degree Requirements:

This concentration requires completion of the four Technical Electives listed under the Program Description for a total of 18 quarter units.

Requirements for Area of Concentration (4 courses; 18 quarter units) **Units:** 18.00

CSC 449	Software Engineering ***Prerequisite:*** *CSC 300 and CSC 422*	4.50
CSC 441	Web App Development ***Prerequisite:*** *CSC 300 and CSC 422*	4.50
CSC 443	Mobile App Development ***Prerequisite:*** *CSC 300 and CSC 422*	4.50

CSC 447	Software Testing & Automation ***Prerequisite:*** *CSC 300*	4.50

Bachelor of Science in Construction Management

Status: *Historical-Review all addendums*
Academic Program Director: Ed Brayton; ebrayton@nu.edu

The purpose of the Bachelor of Science in Construction Management program is to provide students with a well-rounded education in technical construction fundamentals, written and verbal communication, mathematics, business, law, humanities, and natural sciences. This degree program will prepare the student for careers in management, administrative, and ownership positions in the construction industry such as construction executive, project manager, project engineer/coordinator, field engineer, planning/scheduling engineer, cost estimator, quality and safety controller, construction superintendent, and facilities engineer.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Demonstrate knowledge of mathematics, science and engineering and its application in identifying, formulating, and solving construction problems.
- Design a construction system, process, or procedure to meet desired needs.
- Indicate a fundamental understanding of mechanical, electrical and structural systems, and sustainability.
- Integrate and apply field inspection and survey techniques, safety standards, and regulatory compliance.
- Apply the principles of project management, accounting, cost estimating and scheduling techniques in construction processes.
- Develop and test hypotheses, analyze and interpret data, and use scientific judgment to draw conclusions.
- Communicate effectively through written, verbal, and graphical media with a range of audiences.
- Understand legal aspects, ethical issues, and professional responsibilities in global, economic, environmental, and societal contexts.
- Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

Degree Requirements:

To receive a Bachelor of Science in Construction Management, students must complete at least 180 quarter units to include a minimum of 69 units of the University General Education requirements; 76.5 units must be completed at the upper-division level and 45 units must be taken in residence, including the capstone project classes. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the degree. Students should refer to the section on undergraduate admission procedures for specific information on admission and evaluation.

Preparation for the Major (10 - 11 courses; 42 - 43.5 quarter units)

COM 103	Public Speaking	4.50
MTH 215	College Algebra & Trigonometry ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50
OR		
MTH 216A	College Algebra I *Discontinued*	3.00

	Prerequisite: *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	
AND MTH 216B	College Algebra II *Discontinued* ***Prerequisite:*** *MTH 216A*	3.00
PHS 104	Introductory Physics *Historical-Review all addendums* ***Prerequisite:*** *2 years of high school algebra and MTH 204, or MTH 216A and MTH 216B*	4.50
PHS 104A	Introductory Physics Lab *Historical-Review all addendums* ***Prerequisite:*** *PHS 104, or PHS 171 for Science Majors.*	1.50
OR PHS 130A	Physics Lab for Engineering^	1.50
ILR 260	Academic Information Literacy ***Prerequisite:*** *ENG 102*	4.50
EGR 219	Intro to Graphics and Auto CAD *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
EGR 220	Engineering Mathematics *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
EGR 225	Statics & Strength of Material ***Prerequisite:*** *EGR 220*	4.50
ACC 201	Financial Accounting Funds.	4.50
CSC 220	Applied Probability & Stats. *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or MTH 220; EGR 220*	4.50

^For online students only

Requirements for the Major (19 courses; 82.5 quarter units)

MGT 309	Prin. of Mgmt & Organizations	4.50
EGR 310	Engineering Economics *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
EGR 320	Scientific Problem Solving *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or EGR 220*	4.50
EGR 320L	Scientific Problem Solving-LAB *Historical-Review all addendums* ***Prerequisite:*** *EGR 320 with a minimum grade of C. The laboratory experiments in EGR 320L build on the content covered in EGR 320 (mechanical, electrical, and thermodynamics problem solving concepts).*	1.50
EGR 316	Legal&Ethicl Const/Engr Issues *Historical-Review all addendums*	4.50
DEN 308	Computer Aided Engineering I *Historical-Review all addendums* ***Prerequisite:*** *EGR 219*	4.50
CEN 320	Surveying, Metrics and GIS *Historical-Review all addendums* ***Prerequisite:*** *EGR 219*	4.50
CEN 323	Structural Analysis *Historical-Review all addendums* ***Prerequisite:*** *EGR 220 and EGR 225*	4.50
CEN 325	Soil Mechanics and Foundation *Historical-Review all addendums* ***Prerequisite:*** *CEN 323*	4.50
CEN 410	Constr Materials and Methods *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CEN 413	Plans and Specifications *Historical-Review all addendums* ***Prerequisite:*** *EGR 219*	4.50

CEN 416	Mech and Electrical Systems *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CEN 419	Est., Scheduling and Control *Historical-Review all addendums* ***Prerequisite:*** *CEN 410*	4.50
EGR 440	Project Management Fundamental	4.50
CEN 420	Est., Scheduling & Control II *Historical-Review all addendums* ***Prerequisite:*** *CEN 419*	4.50
CEN 422	Field Inspection and Safety ***Prerequisite:*** *CEN 410*	4.50
CEN 421	Constr, Acct, Finance and Law ***Prerequisite:*** *ACC 201*	4.50
CEN 425	Design & Const Process Integra	4.50
CEN 480	Sustainable Construction	4.50

Construction Senior Project (3 courses; 13.5 quarter units)

CEN 486A	Construction Senior Project I ***Prerequisite:*** *Completion of 10 core courses in construction program.*	4.50
CEN 486B	Construction Senior Project II ***Prerequisite:*** *CEN 486A*	4.50
CEN 486C	Construction Senior ProjectIII ***Prerequisite:*** *CEN 486B*	4.50

Bachelor of Science in Cybersecurity

Academic Program Director: William Reid; wreid2@nu.edu

The Bachelor of Science in Cybersecurity (BSCYB) program is designed to meet the increasing demand for cybersecurity professionals. This program is designed to provide students with an understanding of basic information technology management concepts and fundamental security skills. Students will also learn the legal and ethical issues associated with cybersecurity. Graduates are prepared for positions in the areas of security analysts, computer network defenders, and computer incident responders. Once students have completed the core cybersecurity classes, they will choose a four-class concentration in Computer Network Defense, Digital Forensics or Information Technology Management.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Analyze a problem and design the cybersecurity measures appropriate to its solution.
- Apply concepts of best practices in cybersecurity management to enterprise processes.
- Describe the ethical challenges that confront a cybersecurity professional.
- Apply security control principles in the construction of cybersecurity solutions.
- Demonstrate written and oral communication skills expected of a cybersecurity professional.
- Demonstrate the ability to securely administer a Windows and Linux system using security automation tools and techniques.
- Demonstrate knowledge of the fundamental concepts of operating systems, networks, and cloud computing.

Degree Requirements:

To receive a Bachelor of Science in Cybersecurity, students must complete at least 180 quarter units, 45 of which must be completed in residence at National University, 81 of which must be completed at the upper-division level, and a minimum 69 units of the University General Education requirements. In the absence of transfer credit, additional general electives may be necessary to satisfy total units for the degree. Students should refer to the section on undergraduate admission procedures for specific information on admission and evaluation.

Foundation Technologies (6 course; 27 quarter units)

CYB 202	Introduction to Networking	4.50
CYB 204	Operating System Fundamentals ***Prerequisite:*** *CYB 202*	4.50
CYB 206	Introduction to Cybersecurity ***Prerequisite:*** *CYB 204*	4.50
CYB 213	Data Fundamentals for Cybersec ***Prerequisite:*** *CYB 206*	4.50
CYB 215	Fund of Virt and Cloud Comp ***Prerequisite:*** *CYB 213*	4.50
CYB 216	Programming for Cybersecurity ***Prerequisite:*** *CYB 215*	4.50

First Core Sequence (5 courses; 22.5 quarter units)

CYB 331	Secure Linux System Admin ***Prerequisite:*** *CYB 216*	4.50
CYB 332	Secure Windows Administration ***Prerequisite:*** *CYB 331*	4.50
CYB 333	Security Automation ***Prerequisite:*** *CYB 332*	4.50
CYB 320	Tech Writing/Proj Mgnt for CYB	4.50
CYB 340	Sys Sec Arch for Cybersec ***Prerequisite:*** *CYB 333*	4.50

Second core sequence (6 courses; 27 quarter units)

CYB 420	Sec Audit and Assessments ***Recommended: Prior completion of:*** *CYB 340 At least 13.5 units of the first core sequence must be completed before this course.*	4.50
CYB 450	Cyber Threat Intelligence ***Prerequisite:*** *CYB 340*	4.50
CYB 451	Incident Handling/Response ***Prerequisite:*** *CYB 340*	4.50
CYB 452	Intro to Ethical Hacking ***Prerequisite:*** *CYB 340*	4.50
CYB 453	Network Defense ***Prerequisite:*** *CYB 452*	4.50
CYB 454	Cybersec Planning and Policy ***Prerequisite:*** *CYB 340*	4.50

Project (3 courses; 13.5 quarter units)

Students must complete all the CORE courses listed above, along with completing the concentration requirements, before beginning the project course sequence listed below:

CYB 499A	Cybersecurity Project I ***Prerequisite:*** *CYB 460; CYB 461; CYB 462; CYB 463, or CYB 470; CYB 471; CYB 472; CYB 473, or CYB 480; CYB 481; CYB 482; CYB 483*	4.50
CYB 499B	Cybersecurity Project II ***Prerequisite:*** *CYB 499A*	4.50
CYB 499C	Cybersecurity Project III ***Prerequisite:*** *CYB 499B*	4.50

Concentration in Computer Network Defense

The concentration in Computer Network Defense provides for greater focus on the security issues for computer networks.

Program Learning Outcomes:

Upon successful completion of this program, students will be able to:

- Demonstrate the ability to set up, implement and assess cybersecurity status of a computer system.
- Apply security controls affecting virtualized computing environment, a wireless network and an operating system.

Requirements for the Concentration (4 courses; 18 quarter units)

CYB 460	Operating System Security ***Prerequisite:*** *CYB 454*	4.50
CYB 461	Wireless and Mobile Security ***Prerequisite:*** *CYB 460*	4.50
CYB 462	Cloud and Virtualization Sec ***Prerequisite:*** *CYB 460*	4.50
CYB 463	Advanced Network Defense ***Prerequisite:*** *CYB 460*	4.50

Concentration in Digital Forensics

The concentration in Digital Forensics provides for greater focus on investigation and analysis of computers and networks.

Program Learning Outcomes:

Upon successful completion of this program, students will be able to:

- Demonstrate the ability to conduct a digital forensics investigation on a server or workstation using commonly accepted standards and tools.
- Demonstrate the ability to preserve digital evidence using federal rules of digital evidence.
- Demonstrate the ability to conduct a digital forensics investigation on a mobile device using commonly accepted standards and tools.
- Examine digital evidence for indications of illegal malicious activity or malfeasance.

Requirements for Concentration (4 courses; 18 quarter units)

CYB 470	Intro to Digital Forensics ***Prerequisite:*** *CYB 454*	4.50
CYB 471	Operating Systems Forensics ***Prerequisite:*** *CYB 470*	4.50
CYB 472	Network Forensics ***Prerequisite:*** *CYB 470*	4.50
CYB 473	Mobile Device Forensics ***Prerequisite:*** *CYB 470*	4.50

Concentration in Information Technology Management

This 4-course concentration in Information Technology Management (ITM) provides for greater focus on the management of information and technology in regards to a secured networked system.

Program Learning Outcomes:

Upon successful completion of this program, students will be able to:

- Demonstrate the ability to manage and secure IT hardware, data, and databases.
- Integrate best practices for administering, managing, securing, and delivering cloud technologies.

Requirements for the Concentration (4 courses; 18 quarter units)

CYB 480	IT Hardware ***Prerequisite:*** *CYB 454*	4.50
CYB 481	Data/Database Security ***Prerequisite:*** *CYB 480*	4.50
CYB 482	Network Administration ***Prerequisite:*** *CYB 481*	4.50
CYB 483	Cloud Management ***Prerequisite:*** *CYB 482*	4.50

Bachelor of Science in Data Science

Status: *Historical-Review all addendums*
Academic Program Director: Jodi Reeves; jreeves@nu.edu

This program explores the Data Science Life Cycle of Data Acquisition, preparation, management, mining, modeling, and visualization. Major courses apply analytical methods to solve real-world problems and prepare for entry-level careers in Data Science. Concentrations are available in Machine Learning and Artificial Intelligence, Cybersecurity, or Bioinformatics. The program culminates in a three-month capstone where publicly available data is used in a project to demonstrate mastery of the Data Science Life Cycle in the chosen concentration area.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Apply theory, methods, and tools throughout the Data Science Life Cycle to satisfy stakeholders' needs.
- Analyze a complex Data Science problem by applying principles of computing and mathematics to identify solutions.
- Synthesize a computing-based solution to meet a given set of requirements in the context of Data Science.
- Communicate effectively in a variety of professional contexts.
- Recognize legal and ethical professional responsibilities to make informed judgments in Data Science practice.
- Function effectively as a member of a Data Science Team.

Degree Requirements:

To receive a Bachelor of Science Degree with a Major in Data Science, students must complete at least 180 quarter units as articulated below, 45 of which must be completed in residence at National University, 76.5 of which must be completed at the upper-division level and a minimum 69 units of the University General Education requirements. The following courses are specific degree requirements. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the degree.

Preparation for Major (5-6 courses; 22.5-24 quarter units) **Units:** 22.50-24.00

ANA 200	Intro to Data Science	4.50
ANA 230	Intro to Data Visualization ***Prerequisite:*** *ANA 200*	4.50
MTH 210	Probability and Statistics ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50

		4.50-6.00
MTH 215	College Algebra & Trigonometry ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50
OR		
		6.00
MTH 216A	College Algebra I *Discontinued* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	3.00
AND		
MTH 216B	College Algebra II *Discontinued* ***Prerequisite:*** *MTH 216A*	3.00
CSC 350	Computer Ethics	4.50

Major in Data Science (11 courses; 49.5 quarter units) **Units:** 49.50

ANA 310	Data Acquisition ***Prerequisite:*** *ANA 200 and ANA 230*	4.50
ANA 320	Data Management and Governance ***Prerequisite:*** *ANA 310*	4.50
MTH 330	Applied Statistical Methods ***Prerequisite:*** *MTH 210*	4.50
ANA 330	Data Preparation ***Prerequisite:*** *ANA 320 and MTH 330*	4.50
MTH 220	Calculus I ***Prerequisite:*** *MTH 215, or Accuplacer test placement*	4.50
ANA 340	Data Mining ***Prerequisite:*** *ANA 330*	4.50
ANA 350	Data Modeling ***Prerequisite:*** *ANA 340*	4.50
MTH 325	Discrete Mathematics *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
MTH 435	Linear Algebra *Historical-Review all addendums* ***Prerequisite:*** *MTH 220 and MTH 325*	4.50
ANA 420	Advanced Data Management ***Prerequisite:*** *ANA 350*	4.50
ANA 430	Advanced Data Visualization ***Prerequisite:*** *ANA 420*	4.50

Capstone (3 courses; 13.5 quarter units) **Units:** 13.50

ANA 499A	Data Science Project I ***Prerequisite:*** *Prior completion of all Major Prep, Major, and Concentration classes in BS Data Science program are to be completed before registering for this course.; ANA 485, or CYB 456, or BIO 471*	4.50
ANA 499B	Data Science Project II ***Prerequisite:*** *ANA 499A*	4.50
ANA 499C	Data Science Project III ***Prerequisite:*** *ANA 499B*	4.50

Concentration in Cybersecurity Analytics

Academic Program Director: Christopher Simpson; csimpson@nu.edu

The Concentration in Cybersecurity Analytics provides for greater depth in Computer Science topics including: Networking, Cybersecurity, Cloud Computing, Incidence Response, and Network Analytics.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Apply the principles of Data Science to solve a Cybersecurity problem.
- Analyze a complex set of Cybersecurity Data by applying principles of Cybersecurity, incident response techniques, and other relevant disciplines to determine the cause of a cyber attack.
- Communicate the results of a cybersecurity investigation.
- Demonstrate knowledge of the fundamental concepts of operating systems, networks, and cloud computing.

Degree Requirements:

Requirements for the Concentration (7 courses; 31.5 quarter units)

Requirements for the Concentration (7 courses; 31.5 quarter units)		**Units:** 31.50
CYB 202	Introduction to Networking	4.50
CYB 206	Introduction to Cybersecurity ***Prerequisite:*** *CYB 204*	4.50
CYB 215	Fund of Virt and Cloud Comp* ***Prerequisite:*** *CYB 213*	4.50
CYB 451	Incident Handling/Response ** ***Prerequisite:*** *CYB 340*	4.50
CYB 453	Network Defense ***Prerequisite:*** *CYB 452*	4.50
CYB 455	Network Data Analysis ***Prerequisite:*** *CYB 453*	4.50
CYB 456	Data Analytics for Cybersec ***Prerequisite:*** *CYB 455*	4.50

* CYB 204 prerequisite is being waived for students in this concentration. ** CYB 340 prerequisite is being waived for students in this concentration.

Bachelor of Science in Homeland Security and Emergency Management

Academic Program Director: Kenneth Christopher; kchristopher@nu.edu

The Bachelor of Science in Homeland Security and Emergency Management (BS-HSEM) program provides graduates with a foundation in the security issues; practices, politics and cultures of terrorism; best practices to cope with a pending emergency; and operations during and recovery from an emergency. The program also focuses on the management aspects of disasters and emergencies. More importantly, the program focuses on developing well rounded decision makers with a background in leadership and ethics. Students will conduct research on various government and private sector entities and report on suggested improvements in preparing for an emergency. The program prepares graduates to work in a variety of homeland security and emergency preparedness capacities such as land borders, seaports and airports, threat assessment, disaster management, and crisis response planning and management. The goal of the program is to develop both the critical acumen and theoretical outcomes before, during, and after emergencies. Graduates will develop the ability to write emergency plans, implement and manage emergency plans, and assist decision makers on recovery issues.

The BS-HSEM program is designed for students who aspire to work in the security, business continuity and disaster management fields in the public sector (city, state or federal governments), non-profit organizations and private industry. It is also appropriate for military personnel of all ranks, mid-level managers, and managers seeking promotion within the various levels of government and private industry.

The BS-HSEM program is composed of eleven core courses and five electives offered in accelerated one-month onsite and online formats. As an introduction, students are offered a broad overview of security management, current issues in homeland security, and the culture and politics of terrorists. The remaining five courses expose the student to direct management strategies for preparing for emergencies and responding to disasters, including related ethical issues. Together these courses provide a theoretical and practical foundation for managing security issues and addressing emergencies.

Bachelor of Science in Homeland Security and Emergency Management/Master of Criminal Justice Leadership (BS-HSEM/MCJL) Transition Program
Students who are currently enrolled in the Bachelor of Science in Homeland Security and Emergency Management program and have at least a GPA of 3.0 and are within six courses of graduation, may register for the BS-HSEM/MCJL transition program by asking their admission advisor to submit a plan change into the transition program and by taking any two MCJL classes as electives during the BS-HSEM program. To be eligible, students must apply for and begin the MCJL program within six months of completing their BS-HSEM program. Students may choose up to two of the Graduate-level Criminal Justice courses, with the exception of CJA 690A and CJA 690B.

For students in the BS-HSEM/MCJL transition program, the University will waive two graduate-level criminal justice courses taken as part of the bachelor's degree, but these students must still meet the residency requirements for the MCJL.

Bachelor of Science Homeland Security and Emergency Management /Master of Public Administration (BS-HSEM/MPA) Transition Program
Students who are currently enrolled in the Bachelor of Science in Homeland Security and Emergency Management program and have at least a GPA of 3.0 and are within six courses of graduation, may register for the BS-HSEM/MPA transition program by asking their admission advisor to submit a plan change into the transition program and by taking two MPA classes as electives during the BS-HSEM program. To be eligible, students must apply for and begin the MPA program within six months of completing their BS-HSEM program. Students may choose up to two of the graduate-level public administration courses with the exception of PAD 631 and PAD 644.

For students in the BS-HSEM/MPA transition program, the University will waive two graduate-level public administration courses taken as part of the bachelor's degree, but these students must still meet the residency requirements for the MPA.

Bachelor of Science Homeland Security and Emergency Management /Master of Science Homeland Security and Emergency Management (BS-HSEM/MS-HSEM) Transition Program
Students who are currently enrolled in the Bachelor of Science in Homeland Security and Emergency Management program and have at least a GPA of 3.0 and are within six courses of graduation, may register for the BS-HSEM/MS-HSEM transition program by asking their admission advisor to submit a plan change into the transition program and by taking two MS-HSEM classes as electives during the BS-HSEM program. To be eligible, students must apply for and begin the MS-HSEM program within six months of completing their BS-HSEM program. Students may choose up to two of the graduate-level HSEM courses with the exception of HSE 690A and HSE690B.

For students in the BS-HSEM/MS-HSEM transition program, the University will waive two graduate-level HSEM courses taken as part of the bachelor's degree, but these students must still meet the residency requirements for the MS-HSEM.

HSE 490 Supervised Senior Project Information:
The Supervised Senior Project is designed to be a comprehensive research project. Therefore, students should schedule HSE 490 toward the end of their degree program. Students must have fulfilled all General Education, Core and Elective course requirements prior to beginning this course.

To complete the project satisfactorily, students apply extensive effort in research and writing over a period of two months. Due to the time and effort required for this project, it is recommended that students dedicate themselves to the completion of this project without academic distraction.

Students who do not complete the Supervised Senior Project within the two-month period are eligible, at the discretion of the instructor, to receive a grade of "IP", which allows 12 months from the start date of the class for the student to complete. Students who do not complete the project by the end of the specified time period will need to retake HSE 490. No grade of "I" (Incomplete) can be given for this course.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Apply relevant criticism in sustained analysis and interpretations of security management thinking.
- Evaluate emergency disaster pre-plans, recovery plans, and after-action reports.
- Engage in informed critical discussion, both oral and written, pertaining to domestic security management and past breaches of security within the United States.
- Apply analytical skills in approaching ethical dilemmas and implications of technology and other areas faced in government and private industry.
- Describe the political and religious implications of the terrorist climate.
- Describe and analyze the role groups and teams have in organizations as they relate to addressing homeland security and emergency management issues.
- Describe the roles local, state and federal government agencies have in addressing homeland security and emergency management issues.
- Develop written, oral communication and critical thinking skills.

Degree Requirements:

To earn a Bachelor of Science with a major in Homeland Security and Emergency Management, students must complete at least 180 quarter units as described below, 76.5 quarter units must be completed at the upper division level, 45 quarter units must be completed in residence at National University and a minimum of 69 units of the University General Education requirements must be completed. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the degree. Students should refer to the section on undergraduate admission procedures for specific information on admission and evaluation.

Requirements for the Major (11 courses; 49.5 quarter units)

HSE 401	Domestic Security Management	4.50
PAD 400	Intro to Public Administration	4.50
LED 410	Leading Diverse Groups & Teams	4.50
CJA 467	Intl. & Domestic Terrorism	4.50
HSE 475	Interviewing and Interrogation	4.50
HSE 420	Information Security	4.50
HSE 430	Border-Transportation Security	4.50
HSE 440	Crisis Management	4.50
HSE 470	Legal Issues of Security	4.50
HSE 444	Disaster Management	4.50
HSE 490	Supervised Senior Project ***Prerequisite:*** *Students must have fulfilled all General Education, Core Courses, and Elective Courses requirements prior to beginning this course.*	4.50

Upper-Division Electives (5 courses; 22.5 quarter units)

Students may complete any 5 upper division courses to satisfy the elective requirements.

Bachelor of Science in Manufacturing Design Engineering Technology

Status: *Historical-Review all addendums*
Academic Program Director: Ronald Uhlig; ruhlig@nu.edu

The Bachelor of Science in Manufacturing Design Engineering Technology provides students with the theoretical foundations, hands-on experience, and teaming skills required for effective conceptual, logistical, developmental, and interdisciplinary design of complex engineering devices, product life cycles, and engineering systems through integration of state-of-the-art computer-aided tools, concurrent engineering standards, and simulation modeling techniques. Graduates of this program will have competency in the fundamentals of evolving automated

manufacturing technology and provide the industry with a source for qualified graduates to apply engineering principles in the design and manufacture of engineering products and systems.

Upon completion of this degree, students will be prepared to hold positions such as manufacturing system design engineer, design supervisor for engineering projects, and product design engineer. The program blends professional components from the traditional engineering curricula with the practical aspects of programming applications, engineering project management standards, and simulation modeling techniques. It also combines knowledge and practices needed for professionals working on engineering projects that require innovative and interdisciplinary backgrounds, skills, and experience.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Combine knowledge and practices needed to work on engineering projects that require innovative and interdisciplinary skills
- Utilize product reliability and design optimization concepts in engineering applications
- Apply state-of-the-art computer-aided engineering tools and engineering graphics techniques and methodologies
- Integrate engineering project management standards for efficient and competitive design of engineering products and processes
- Apply the concepts of engineering experiment design and analysis
- Analyze human factors, ergonomics, and safety issues as part of the requirements for design of engineering systems, products, and services
- Analyze a production problem and design and/or develop a manufacturing system
- Develop oral and written communication skills appropriate for engineering professionals
- Demonstrate global awareness and team skills needed in manufacturing design engineering

Degree Requirements:

To receive a Bachelor of Science in Manufacturing Design Engineering Technology, students must complete at least 180 quarter units, 76.5 of which must be completed at the upper-division level and 45 of which must be taken in residence, including the research project classes, and a minimum of 69 units of the University General Education requirements. In the absence of transfer credit, students may need to take additional general electives to satisfy the total units for the degree. Students should refer to the section on undergraduate admission procedures for specific information on admission and evaluation.

Preparation for the Major (11–12 courses; 43.5 - 45 quarter units)

MTH 215	College Algebra & Trigonometry* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	4.50
OR		
MTH 216A	College Algebra I *Discontinued* ***Prerequisite:*** *MTH 12A and MTH 12B, or Accuplacer test placement evaluation*	3.00
AND MTH 216B	College Algebra II *Discontinued* ***Prerequisite:*** *MTH 216A*	3.00
PHS 104	Introductory Physics* *Historical-Review all addendums*	4.50

	Prerequisite: *2 years of high school algebra and MTH 204, or MTH 216A and MTH 216B*	
PHS 104A	Introductory Physics Lab* *Historical-Review all addendums* ***Prerequisite:*** *PHS 104, or PHS 171 for Science Majors.*	1.50
OR PHS 130A	Physics Lab for Engineering	1.50
CHE 101	Introductory Chemistry* *Historical-Review all addendums* ***Recommended Preparation:*** *MTH 204, or MTH 216A and MTH 216B*	4.50
CHE 101A	Introductory Chemistry Lab* *Historical-Review all addendums* ***Prerequisite:*** *CHE 101, or CHE 141 for Science Majors.*	1.50
OR CHE 120A	Intro to Chemistry Lab for Eng ***Prerequisite:*** *CHE 101*	1.50
EGR 219	Intro to Graphics and Auto CAD *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
EGR 220	Engineering Mathematics *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
EGR 225	Statics & Strength of Material ***Prerequisite:*** *EGR 220*	4.50
EGR 230	Electrical Circuits & Systems *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CSC 208	Calculus for Comp. Science I* *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
CSC 220	Applied Probability & Stats. *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or MTH 220; EGR 220*	4.50

*May be used to satisfy a general education requirement.

Requirements for the Major (15 courses; 64.5 quarter units)

EGR 316	Legal&Ethicl Const/Engr Issues *Historical-Review all addendums*	4.50
EGR 320	Scientific Problem Solving *Historical-Review all addendums* ***Prerequisite:*** *CSC 208, or EGR 220*	4.50
EGR 320L	Scientific Problem Solving-LAB *Historical-Review all addendums* ***Prerequisite:*** *EGR 320 with a minimum grade of C. The laboratory experiments in EGR 320L build on the content covered in EGR 320 (mechanical, electrical, and thermodynamics problem solving concepts).*	1.50
DEN 308	Computer Aided Engineering I *Historical-Review all addendums* ***Prerequisite:*** *EGR 219*	4.50
EGR 310	Engineering Economics *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
DEN 411	Computer Aided Engineering II ***Prerequisite:*** *EGR 219*	4.50
DEN 417	Computer Aided Engineering IV ***Prerequisite:*** *EGR 219*	4.50
DEN 420	Computer Aided Engineering V ***Prerequisite:*** *EGR 219; DEN 411 with a minimum grade of C. Student must have a working knowledge of the basics of SolidWorks to be successful in DEN 420; DEN 417 with a minimum grade of C. Student must have a working knowledge of the basics of MatLab to be successful in DEN 420*	4.50

DEN 422	Materials and Manufacturing ***Prerequisite:*** *EGR 225*	4.50
DEN 423	Human Factors in Engineering *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
DEN 426	Reliability Engineering *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
DEN 429	Product Design Optimization *Historical-Review all addendums* ***Prerequisite:*** *MTH 215, or MTH 216A and MTH 216B*	4.50
DEN 432	Concurrent Design Engineering *Historical-Review all addendums* ***Prerequisite:*** *MTH 210, or CSC 220*	4.50
DEN 435	Design & Analysis of Experimen *Historical-Review all addendums* ***Prerequisite:*** *CSC 220; DEN 417*	4.50
EGR 440	Project Management Fundamental	4.50

Engineering Senior Project (3 courses; 13.5 quarter units)

DEN 495A	Capstone Design Project I ***Prerequisite:*** *DEN 308; DEN 417; DEN 420; DEN 423; DEN 426; DEN 429; EGR 320; EGR 320L; EGR 440 and satisfactory completion of other requirements for the major as specified by the Academic Program Director*	4.50
DEN 495B	Capstone Design Project II ***Prerequisite:*** *DEN 495A*	4.50
DEN 495C	Capstone Design Project III ***Prerequisite:*** *DEN 495B*	4.50

Graduate Degrees

Class-Based

Master of Public Health

Academic Program Director: Sara Cook; scook2@nu.edu

The Master of Public Health (MPH) is a graduate professional degree designed to prepare students for leadership positions in health promotion and disease prevention, community mental health or public healthcare administration. Public Health involves multidisciplinary and collaborative strategies for solving health-related problems and promoting social justice, including programs that serve the public sector at all levels—local, state, federal, and global. Faculty members have expertise and experience in public health applied research and in higher education.

The MPH program emphasizes the application of broad-based, state-of-the-art quantitative and qualitative skills needed for problem-solving. Special attention is given to enhancement of communication skills needed to work with diverse populations. Ideal candidates for the MPH program are those students looking for career advancement within the public health sector; and those looking for career transition into public health from other health professions. Graduates will enhance their opportunities for professional growth and job placement through carefully planned internships and comprehensive capstone experience. The

MPH program is accredited by the Council on Education for Public Health (CEPH).

Admission Requirements

1. Successful completion of college level introductory statistics course such as BST322 or MTH210.

2. Have completed a baccalaureate degree with a 2.85 cumulative GPA from regionally accredited institutions attended.

Additional Prerequisite Requirement

Students should be proficient in operating a personal computer, including: standard computer operating systems, electronic filing systems, basic keyboarding skills, organizing and sorting electronic documents. Knowledge of standard computer applications to include Microsoft Word, Excel, and PowerPoint and familiarity with using internet browsers and standard email systems such as MS Outlook is required.

In accordance with the competency guidelines established by the National Commission for Health Education Credentialing (NCHEC) and the Council on Education for Public Health (CEPH), the Master of Public Health program prepares graduates to master the following program learning outcomes.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Analyze and interpret Health Data
- Describe the distribution and determinants of disease, disabilities and death in human populations.
- Evaluate the environmental factors that affect the health of a community.
- Analyze the planning, organization, administration, and policies of health care organizations
- Apply the concepts and methods of social justice and behavioral sciences relevant to the identification and solution of public health problems.
- Communicate appropriate public health content in writing and through oral presentation in a culturally competent and effective manner

Degree Requirements:

To receive an MPH degree, students must complete at least 72 quarter units of graduate work including the core MPH requirements and one area of specialization. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another institution, as it applies to this degree and provided the units were not used in earning another advanced degree. Refer to the section on graduate admission requirements for specific information regarding application and evaluation.

Core Requirements (8 courses; 33 quarter units)

COH 599	Public Health Foundation	1.50
HCA 600	U.S. Healthcare System	4.50
COH 601	Global Public Health ***Prerequisite:*** *HCA 600*	4.50
COH 602	Biostatistics	4.50
COH 604	Theories of Health Behavior	4.50
COH 606	Epidemiology ***Prerequisite:*** *COH 602, or ANA 630*	4.50
COH 611	Public Health Research Methods	4.50
COH 612	Health Policy and Advocacy	4.50

Specialization in Community Mental Health

Academic Program Director: Sara Cook; scook2@nu.edu

Students in the specialization in Community Mental Health will be prepared for leadership positions in planning, implementing and evaluating community-wide prevention programs to enhance mental health.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Assess the social, political, and environmental context of mental health in relation to public health practice.
- Create evidence-based programs to prevent or reduce mental health disorders in community settings.
- Design an evaluation plan to assess the effectiveness of a community mental health program.
- Identify factors that promote or influence the occurrence, persistence, or severity of mental and behavioral disorders.

- Apply appropriate research principles and techniques to mental health.
- Construct an advocacy plan to improve culturally sensitive mental health policies in communities.

Requirements for the Specialization (7 courses; 31.5 quarter units)

COH 623	Mental Health Services	4.50
COH 627	Mental Health Populations	4.50
COH 621	PH Aspects of Drug Addiction ***Prerequisite:*** *COH 602*	4.50
COH 616	Mental Health Promotion	4.50
COH 614	Psychosocial Epidemiology ***Prerequisite:*** *COH 606*	4.50
COH 617	PH Aspects of Violence ***Prerequisite:*** *COH 604*	4.50
COH 619	PH Aspects of Human Sexuality ***Prerequisite:*** *COH 604*	4.50

Health Experience (1 course; 3 quarter units)

COH 550	Global Health Experience	3.00
OR		
COH 693C	Mental Health Experience ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 693C*	3.00

Capstone Requirement (1 course; 4.5 quarter units)

COH 694C	Mental Health Capstone ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 694C*	4.50

Specialization in Health Promotion

Academic Program Director: Sara Cook; scook2@nu.edu

The specialization in Health Promotion will prepare MPH students for leadership positions in health promotion, health education and health enhancement. The program emphasizes the planning, implementation and evaluation of community-wide prevention programs. The pursuit of social justice and global health are overarching concepts throughout the MPH program.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Assess factors that influence, enhance or impede health promotion.
- Explain factors that influence implementation of health promotion programs.
- Evaluate the implementation of health promotion programs.
- Integrate the results of health promotion evaluation into interventions and policies.
- Apply principles of financial management, information technology, human resource management and community building to build or enhance health promotion programs.
- Provide advice and consultation on health promotion issues.
- Apply appropriate research principles and techniques to develop health promotion programs.

Degree Requirements:
Requirements for the Specialization (7 courses; 31.5 quarter units)

COH 603	Public Health Biology	4.50
COH 608	Public Health & the Enviro	4.50
COH 605	Public Health Promotion ***Prerequisite:*** *COH 604*	4.50
COH 607	Public Health Program Develop ***Recommended Preparation:*** *COH 604*	4.50
COH 609	PH Program Evaluation	4.50
COH 618	Health Promotion Strategies ***Prerequisite:*** *COH 605 and COH 609*	4.50
COH 613	Public Health Informatics ***Prerequisite:*** *COH 606*	4.50

Health Experience (1 course; 3 quarter units)

COH 550	Global Health Experience	3.00
OR		
COH 693A	Health Promotion Experience ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 693A.*	3.00

Capstone Requirement (1 course; 4.5 quarter units)

COH 694A	Health Promotion Capstone ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 694A*	4.50

Specialization in Healthcare Administration

Academic Program Director: Sara Cook; scook2@nu.edu
The Specialization in Healthcare Administration will prepare MPH students for leadership positions in public and private healthcare. Healthcare management involves the organization, financing and delivery of services to prevent and treat illness and disease.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Conduct financial analysis, explain financial and accounting information, and make long-term investment decisions for a healthcare organization.
- Apply healthcare management methods to healthcare organizations.
- Use administrative and health information technology to develop process and performance improvement plans.
- Incorporate the principles of quality management for improving outcomes in healthcare organizations.
- Synthesize best practices in healthcare leadership.

Degree Requirements:
Requirements for the Specialization (7 courses; 31.5 quarter units)

HCA 620	Health Organization Management ***Prerequisite:*** *COH 602*	4.50
HCA 626	Healthcare Information Systems[**] ***Prerequisite:*** *ANA 630*	4.50
HCA 622	Quality Appraisal & Evaluation ***Prerequisite:*** *HCA 600 and HCA 620*	4.50

HCA 628	HA Human Resources Management	4.50
HCA 663	Healthcare Accounting/Finance ***Prerequisite:*** *HCA 628*	4.50
HCA 624	Healthcare Planning &Marketing ***Prerequisite:*** *COH 611*	4.50
HCA 670	Healthcare Leadership ***Prerequisite:*** *HCA 624*	4.50

**Please note: ANA prerequisite is NOT required for students in the Specialization in Healthcare Administration

Health Experience (1 Course; 3 quarter units)

COH 550	Global Health Experience	3.00
OR		
COH 693B	Healthcare Admin Experience ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 693B*	3.00

Capstone Requirement (1 course; 4.5 quarter units)

COH 694B	Healthcare Admin Capstone ***Recommended: Prior completion of:*** *all core and specialization courses prior to enrolling in COH 694B*	4.50

Master of Science in Applied Behavioral Analysis

Status: *Historical-Review all addendums*
Academic Program Director: Faheema Abdool-Ghany; fabdoolghany@nu.edu

The Master of Science in Applied Behavioral program prepares students with the course work required for understanding the role of an applied behavior analyst. The curriculum includes a 10 course sequence, of which 8 courses are verified by the Behavior Analyst Certification Board. This course work along with the additional 2000 hours of approved supervision allows a student to be eligible to sit for the BCBA exam. Behavior analysts provide services to individuals, families, group homes, schools, mental health agencies, hospitals, industrial and business settings, and other agencies working with individuals who require intensive behavioral training and/or consultation. This program is designed to prepare candidates for acceptable behavior management techniques and strategies to be used in a wide range of settings. Students will be required to develop, implement, analyze, and evaluate, behaviorally accepted methods for positive behavior change across various environments. Information about becoming certified through the BACB can be found at www.bacb.com.

Program Disclosure

National University MS ABA program currently only satisfies the educational/coursework component for this certification. In addition to the educational requirements, graduates of this program will need to also meet additional requirements established by the BCBA® including supervised field experiences, applications, examinations, and background checks to become certified.

Some states and/or territories require applicants to also obtain the Licensed Behavior Analyst (LBA) credential, to practice in that state, which could include additional requirements. It is strongly recommended that the applicant contact their state board of Psychology or the issuing governing board of the LBA for more information.

SAFMEDS

SAFMEDS is an online platform designed to provide students critical skills practice of key program learning outcomes. All ABA students are required to utilize SAFMEDS. Please see the Tuition and Fees section of the catalog for the SAFMEDS fee.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Understand key principles of behavior analysis, including terminology and foundational concepts
- Apply behavior analytic techniques to design and implement effective interventions for behavior change
- Develop behavior change programs that incorporate individualized strategies, data collection methods, and measurement systems.
- Assess the ethical considerations involved in behavior analysis practices, including client rights and professional conduct.
- Integrate knowledge and skill in the identification of the function of the behavior and the development of an intervention.
- Collaborate effectively with interdisciplinary teams, including educators, psychologists, and healthcare professionals, to achieve behavior change goals.

Degree Requirements:

To receive a Master of Science in Applied Behavior Analysis, students must complete at least 45 quarter units of graduate work. A total of 4.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another institution. To effectively transfer units to this degree, the transferable units were not previously used in earning another advanced degree. In addition, the coursework was completed within the past 7 years. Course equivalence cannot be granted for life experience. Please refer to the graduate information section of the University catalog for admission and evaluation.

Program Requirements (10 courses; 45 quarter units)

ABA 620	Philosophical Underpinning ABA *Historical-Review all addendums*	4.50
ABA 622	Concepts and Principles of ABA *Historical-Review all addendums* ***Prerequisite:*** *ABA 620*	4.50
ABA 624	Measurement and Design *Historical-Review all addendums* ***Prerequisite:*** *ABA 622*	4.50
ABA 626	Functional Behavior Assessment *Historical-Review all addendums* ***Prerequisite:*** *ABA 624*	4.50
ABA 628	Behavioral Change Procedures *Historical-Review all addendums* ***Prerequisite:*** *ABA 626*	4.50
ABA 630	Developing ABA Interventions *Historical-Review all addendums* ***Prerequisite:*** *ABA 628*	4.50
ABA 632	Ethics Compliance Code *Historical-Review all addendums* ***Prerequisite:*** *ABA 630*	4.50
ABA 634	Supervision and Management *Historical-Review all addendums* ***Prerequisite:*** *ABA 632*	4.50
ABA 636	Application of ABA Skills *Historical-Review all addendums* ***Prerequisite:*** *ABA 634*	4.50
ABA 670	ABA Capstone Project *Historical-Review all addendums* ***Prerequisite:*** *ABA 636*	4.50

Master of Science in Educational Counseling Community College Counseling Emphasis

Academic Program Director: Melanie Shaw; mshaw3@nu.edu

The Master of Science in Educational Counseling Community College Emphasis degree provides the academic pathways for students who are committed to the professional practice of counseling in community colleges and other educational organizations. The program is designed to prepare educational counselors to be reflective social justice leaders who advocate for positive institutional transformation that promotes anti-racist, just, and equitable outcomes for all students. Students will be prepared to deliver culturally responsive services to a pluralistic society and will develop comprehensive counseling skills informed by theory, research, and practice.

All coursework must be successfully completed prior to degree recommendation. Course equivalence will not be granted for life experiences.

***State Credential Disclosure Information**
The Master of Science in Educational Counseling Program is not designed to lead to licensure or credentialing in any state.

For up-to-date information on program licensure eligibility requirements for a state, please visit: https://www.nu.edu/licensuredisclosures/

Additional fees

GoReact
All Educational Counseling students are required to utilize GoReact.GoReact is an online video coaching and collaboration platform designed to improve professional practices. Please see the Tuition and Fees section of the catalog for the GoReact fees.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Advocate for all PK-14 students by employing anti-racist practice within educational foundations, growth and development, learning theory, and academic achievement.
- Implement the basic foundations of school counseling professional standards.
- Perform as equitable driven leaders and promote social justice efforts to enhance inclusivity and access for all.
- Distinguish among major developmental theories of practice (personality, social, physical, emotional, and cognitive development) and chronological stages of human development that impact student academic development and life-long learning.
- Examine, assess, and construct academic, social, and emotional comprehensive development programs with research-based practices.
- Evaluate legal and ethical practices of professional school counseling.
- Evaluate and assess program development for equitable outcomes.
- Demonstrate competence in the application of research methods.

Degree Requirements:

To receive a Master of Science in Educational Counseling Community College Emphasis, students must complete at least 72 quarter units of graduate work. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another accredited institution, as it applies to this degree, if the units were not used in earning another advanced degree.

*****Coursework must have been completed within the ***past 5* years**. Course equivalence cannot be granted for life experience.

Degree Requirements (15 courses; 72 quarter units)
Core Requirements (13 courses: 63 quarter units)

EDC 600	Foundations of Professional EC	4.50

	Prerequisite: *5 year CA Certificate of Clearance (CL-900) is needed before enrolling in the course.*	
EDC 601	EDC Equity Driven Leadership ***Prerequisite:*** *EDC 600*	4.50
EDC 602	Ethics&Legal Mandates for EC ***Prerequisite:*** *EDC 601*	4.50
EDC 603	SEL & Academic Development ***Prerequisite:*** *EDC 602*	4.50
EDC 604	Cultural Conscious Counseling ***Prerequisite:*** *EDC 603*	4.50
EDC 605A	Individual/Group Counseling ***Prerequisite:*** *EDC 604*	4.50
EDC 605B	Individual/Group Counseling ***Prerequisite:*** *EDC 605A*	4.50
EDC 606	Trauma Informed Counseling ***Prerequisite:*** *EDC 605B*	4.50
EDC 607	Current Trends in Schools ***Prerequisite:*** *EDC 606*	4.50
EDC 608	College & Career Counseling ***Prerequisite:*** *EDC 607*	4.50
EDC 609	EDC Evaluation and Assessment ***Prerequisite:*** *EDC 608*	4.50
EDC 610	Intro EDC Research Methods ***Prerequisite:*** *EDC 609*	4.50
EDC 611	Research in Schools ***Prerequisite:*** *EDC 610*	9.00

Community College Counseling Emphasis Requirements (2 courses; 9 quarter units) **Units:** 9.00

For the Community College Counseling Emphasis, the completion of the following two courses is required after completion of the core courses.

EDC 614A	Exploration of CC Counseling ***Prerequisite:*** *EDC 600; EDC 601; EDC 602; EDC 603; EDC 604; EDC 605A; EDC 605B; EDC 606; EDC 607; EDC 608; EDC 609; EDC 610; EDC 611*	4.50
EDC 614B	Exploration of CC Counseling ***Prerequisite:*** *EDC 614A*	4.50

Master of Science in Educational Counseling w/ PPS Credential

Status: *Historical-Review all addendums*
Academic Program Director: Melanie Shaw; mshaw3@nu.edu

The Master of Science in Educational Counseling with PPS Credential degree provides the academic pathways for students who are committed to the professional practice of counseling in schools. The program is designed to prepare educational counselors to be reflective social justice leaders that advocate for positive institutional transformation that promotes anti-racist, just and equitable outcomes for all students. Students will be prepared to deliver culturally responsive services to a pluralistic society and will develop comprehensive counseling skills informed by theory, research and practice.

Admission Requirement
1. Five year CA Certificate of Clearance (CL-900) is needed before enrolling in any EDC course.

Pupil Personnel Service School Counseling
The Pupil Personnel Services Credential - School Counseling (PPS-SC) provides the students with the acquired skills to become social justice leaders and competent school-based mental health professionals through a program of study aligned with the American School Counselor Association's (ASCA) National Standards. This pathway provides PPS candidates with the acquired skills, knowledge, and abilities to become a professional school counselor and involves a combination of coursework, practicum, and fieldwork.

Successful completion of this program of study leads to a master's degree with the Pupil Personnel Services Credential in School Counseling and a Child Welfare and Attendance (CWA) authorization. Credentials and authorizations are awarded through the California Commission on Teacher Credentialing (CCTC).

Students enrolled in the credential pathway are awarded the master's degree once they have successfully completed all the coursework, a capstone project, and the PRAXIS exam. All coursework must be completed prior to the PPS-SC credential recommendation. Course equivalence will not be granted for life experiences. This program is only available to California residents.

For additional information on credential requirements, please see the Sanford College of Education Credential Information section of the catalog.

***State Credential Disclosure Information**
The Master of Science in Educational Counseling Program (PPS-SC) is currently operating using credential guidelines for California only. Students who wish to use this program for credentials in other states must contact the appropriate regulatory board for more information.

For up-to-date information on program licensure eligibility requirements for a state, please visit: https://www.nu.edu/licensuredisclosures/

Additional fees

GoReact
All Educational Counseling students are required to utilize GoReact.GoReact is an online video coaching and collaboration platform designed to improve professional practices. Please see the Tuition and Fees section of the catalog for the GoReact fees.

Time2Track
Students seeking the PPS SC credential will also be required to utilize Time2Track. Time2Track is a web-based software tool that lets students easily track clinical practice activities and hours. Please see the Tuition and Fees section of the catalog for the Time2Track fees.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Advocate for all PK-14 students by employing anti-racist practice within educational foundations, growth and development, learning theory, and academic achievement.
- Implement the basic foundations of school counseling professional standards.
- Perform as equitable driven leaders and promote social justice efforts to enhance inclusivity and access for all.
- Distinguish among major developmental theories of practice (personality, social, physical, emotional, and cognitive development) and chronological stages of human development that impact student academic development and life-long learning.
- Examine, assess, and construct academic, social, and emotional comprehensive development programs with research-based practices.
- Evaluate legal and ethical practices of professional school counseling.
- Evaluate and assess program development for equitable outcomes.
- Demonstrate competence in the application of research methods.

Degree Requirements:

To receive a Master of Science in Educational Counseling, students must complete at least 72 quarter units of graduate work. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another accredited institution, as it applies to this degree if the units were not used in earning another advanced degree.

*****Coursework must have been completed within the ***past 5* years**. Course equivalence cannot be granted for life experience.

Requirements for the Major (15 courses; 72 quarter units)

All core courses must be completed before the commencement of the fieldwork/internship courses.

EDC 600	Foundations of Professional EC ***Prerequisite:*** *5 year CA Certificate of Clearance (CL-900) is needed before enrolling in the course.*	4.50
EDC 601	EDC Equity Driven Leadership ***Prerequisite:*** *EDC 600*	4.50
EDC 602	Ethics&Legal Mandates for EC ***Prerequisite:*** *EDC 601*	4.50
EDC 603	SEL & Academic Development ***Prerequisite:*** *EDC 602*	4.50
EDC 604	Cultural Conscious Counseling ***Prerequisite:*** *EDC 603*	4.50
EDC 605A	Individual/Group Counseling ***Prerequisite:*** *EDC 604*	4.50
EDC 605B	Individual/Group Counseling ***Prerequisite:*** *EDC 605A*	4.50
EDC 606	Trauma Informed Counseling ***Prerequisite:*** *EDC 605B*	4.50
EDC 607	Current Trends in Schools ***Prerequisite:*** *EDC 606*	4.50
EDC 608	College & Career Counseling ***Prerequisite:*** *EDC 607*	4.50
EDC 609	EDC Evaluation and Assessment ***Prerequisite:*** *EDC 608*	4.50
EDC 610	Intro EDC Research Methods ***Prerequisite:*** *EDC 609*	4.50
EDC 611	Research in Schools ***Prerequisite:*** *EDC 610*	9.00
EDC 612A	Fieldwork Experience A ***Prerequisite:*** *EDC 600; EDC 601; EDC 602; EDC 603; EDC 604; EDC 605A; EDC 605B; EDC 606; EDC 607; EDC 608; EDC 609; EDC 610; EDC 611*	4.50
EDC 612B	Fieldwork Experience B ***Prerequisite:*** *EDC 612A*	4.50

Academic Program Director: Melanie Shaw; mshaw3@nu.edu

The Master of Science in Educational Counseling with an Emphasis in Community College Counseling emphasizes the principles and practices of counseling within a community college environment. Students will gain the acquired skills to become social justice leaders, school-based mental health professionals, learning agents, student developers, and resource managers. This pathway offers students with acquired knowledge and professional skills comprehensive counseling, career guidance, and advisement services to students from diverse backgrounds for the purpose of developing and facilitating the attainment of their academic, vocational, and personal objectives.

Successful completion of this plan of study leads to a Master's Degree with an Emphasis in Community College Counseling. Students enrolled in the program are awarded the Master's Degree once they have successfully completed all the coursework, a capstone project, and a comprehensive exam. All coursework must be completed prior to degree recommendation. Course equivalence will not be granted for life experiences.

Additional fees

GoReact

GoReact is an online video coaching and collaboration platform designed to improve professional practices. All Educational Counseling students are required to utilize GoReact. Please see the Tuition and Fees section of the catalog for the GoReact fees.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Advocate for all PK-14 students by employing anti-racist practice within educational foundations, growth and development, learning theory, and academic achievement.
- Perform as equitalble driven leaders and promote social justice efforts to enhance inclusitivity and access for all.
- Distinguish among major developmental theories of practice (personality, social, physical, emotional, and cognitive development) and chronological stages of human development that impact student academic development and life- long learning.
- Evaluate legal and ethical practices of professional school counseling.
- Demonstrate competence in the application of research methods.

Degree Requirements:

Students must complete 72 quarter units of graduate work.

*****Coursework must have been completed within the ***past 5 years***. Course equivalence cannot be granted for life experience.

Community College Emphasis Requirements (2 courses; 9 quarter units)		**Units:** 9.00
EDC 614A	Exploration of CC Counseling ***Prerequisite:*** *EDC 600; EDC 601; EDC 602; EDC 603; EDC 604; EDC 605A; EDC 605B; EDC 606; EDC 607; EDC 608; EDC 609; EDC 610; EDC 611*	4.50
EDC 614B	Exploration of CC Counseling ***Prerequisite:*** *EDC 614A*	4.50

Master of Science in Leadership Studies

Academic Program Director: Julia Buchanan; jbuchanan@nu.edu

The mission of the Master of Science in Leadership Studies (MSLS) program is to prepare diverse learners to become effective, change-oriented leaders in an international society. The program uses distinctive and challenging curriculum that integrates theory with practice, personal success with service to others, and information technology with creativity, empathy, and democracy.

The Master of Science in Leadership Studies (MSLS) program prepares individuals from a wide variety of backgrounds and interests into change-oriented leaders. As every industry and profession needs effective and ethical leadership, employers are increasingly targeting candidates that possess the capacity to take initiative, build and cultivate strong teams, orchestrate conflict, and promote innovation to serve organizational purposes. Using a collaborative, integral and holistic approach, this degree builds the skill set to think critically and analytically, learn communication skills that serve a diverse population, and develop the ability to lead change in increasingly global/complex environments. Drawing from work/life experiences, students will learn to frame problems, use systems thinking and plan strategic interventions. Students will acquire knowledge, skills and abilities through experiential learning and critical analysis.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Distinguish between multiple approaches to exercising leadership in order to harness collective talent, promote innovation and confront complex issues within organizations.
- Interpret organizational dynamics, group dynamics and engage in systems thinking in order to promote the development of a learning organization capable of orchestrating conflict, creating innovation, and adaptation.
- Evaluate ethical issues and aid organizational members in creating ethical culture appropriate to the organizational and/or global arena that supports operating in environments of diversity, uncertainty and unpredictability.
- Discern between the functions of formal authority/power and the understanding of leadership and be able to apply diverse leadership skills, and utilize frameworks to serve organizational purposes.
- Identify quality scholarship and research and demonstrate the potential application of emerging leadership theory and knowledge to real world scenarios and simulations.
- Utilize dialogue and other forms of inquiry with groups and teams in order to create collective problem solving and strategic plans.
- Create frameworks to determine how decisions made might impact ethical culture, support sustainability practices and serve the organizational purpose.
- Identify quality scholarship and research and demonstrate the potential application of emerging leadership theory and knowledge to real world scenarios and simulations.
- Integrate knowledge and skills from multiple disciplines to utilize critical thinking and develop organizational problem-solving capacity.

Degree Requirements:

(12 courses; 54 quarter units)

To receive a Master of Science in Leadership Studies (MSLS), students must complete at least 54 quarter units of graduate work. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another institution, as it applies to this degree and provided the units were not used in earning another advanced degree. Refer to the section on graduate admission procedures for specific information regarding application and evaluation.

Core Requirements (10 courses; 45 quarter units)

LED 601	Ethics and Classic Theories	4.50
LED 602	Developing Groups and Teams	4.50
LED 603	Leadership in the 21st Century	4.50
LED 604	Leading Change and Adaptation	4.50
LED 605	Conflict and Power Dynamics	4.50
LED 610	Analysis and Decision Making	4.50
LED 615	Consulting and Assessments	4.50
LED 620	World View & Adult Development	4.50
LED 680	Leadership Research ***Prerequisite:*** *LED 601; LED 602*	4.50
LED 690	Capstone Project ***Prerequisite:*** *5 LED courses*	4.50

Program Elective (2 courses; 9 quarter units)

Each student must complete two graduate business courses to meet their elective requirement.

Master of Science in Marketing

Status: *Historical-Review all addendums*
Academic Program Director: Jingyun Zhang; jzhang@nu.edu

National University's one-year Master of Science in Marketing Program will build marketing skills, enhance knowledge, and strengthen brand identity with workshop-style classes, experiential curriculum, and digital

leadership. With the emergence of digital marketing technologies marketing has become a highly scientific, data-driven and interdisciplinary practice. The rapid growth in areas such as behavioral targeting, social media marketing, mobile marketing, demand generations, marketing analytics, marketing automation, and marketing operations has created a significant capability gap that has forced many companies to train IT staff to fill these marketing positions. The MS in Marketing program is designed to provide a flexible and well-rounded curriculum to accommodate students with diverse educational backgrounds and experiences. Students will receive in-depth training in all areas of marketing, including strategy, innovation, branding, social media, market research, buyer behavior, product management and international marketing.

Admissions Criteria:

1. Bachelors or higher degree from an accredited college or university;
2. Aptitude and ability to handle quantitative material
3. Communication skills and motivation.
4. Any exception to the above-mentioned requirements will need the approval of the Academic Program Director or the Chair of the Department;

Program Requirement:

Students must take the MKT 602 Marketing Management as the first course in the program. Any exception to this requirement of the program must be approved by the Academic Program Director or the Chair of the Department.

Basic Business Knowledge
Students enrolling in the MS in Marketing program are expected to have a basic understanding of business through undergraduate or graduate coursework. The International Accreditation Council for Business Education (IACBE) provides a requirement of basic business knowledge. Students holding business degrees from IACBE accredited institutions have satisfied this requirement; students who do not have a business degree or a degree from a Non-IACBE accredited institution may also have fulfilled much of this requirement. Advisors at NU can help you determine your fulfillment of this requirement.

The basic business knowledge includes:
• Markets and Organizations
• Business Statistics and Quantitative Methods
• Financial Accounting
• Economics

Basic business knowledge courses do not provide any credit for electives within the MS in Marketing degree. Students must meet the basic business knowledge requirements before taking any of the courses required in the program.

Master of Science in Marketing Transition Programs

Students must complete graduate-level coursework as part of the Bachelor of Arts in Management (BAM) or Bachelor in Business Administration (BBA) degree with a grade of B or better. This coursework, which counts as electives, will not transfer as graduate-level credit to National University or any other institution as it is part of an undergraduate degree program. Grades earned in graduate level courses will be calculated as part of the student's undergraduate GPA. Students must be within completing their last six courses in their undergraduate program and have a cumulative GPA of at least a 3.0 to be eligible. Lastly, students must apply for and begin the appropriate Master's program within six months after completing their final BAM/BBA course. Students must complete their Master's program within four years with no break exceeding 12 months.

The Bachelor of Arts in Management/Master of Science in Marketing (BAM/MSMKT) Transition Program

Students in the BAM/MSMKT transition program may take one MSMKT class as an upper-division elective during the BAM. Students may choose MKT 602 (Marketing Management), or any Elective Requirements: MGT 603, IBU 606, ECO 607, IBU 637, SCM 610, IBU 641, MGT604, COM 610, or IBU 645. The number of courses required to earn an MSMKT degree for transition program students is reduced from 10 to as few as 9 courses, depending on class selected and grade earned.

The Bachelor of Business Administration/Master of Science in Marketing (BBA/MS-MKT) Transition Program

Students in the BBA/MSMKT transition program may take one MSMKT class as an upper-division elective during the BBA. Students may choose MKT 602 (Marketing Management), or any elective requirements: MGT603, IBU 606, ECO 607, IBU 637, SCM 610, IBU 641, MGT604, COM 610, or IBU 645. The number of courses required to earn an MSMKT degree for transition program students is reduced from 10 to as few as 9 courses, depending on class selected and grade earned.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Analyze important terminology, concepts, principles, theories, analytic techniques, and facts used in the field of marketing for effective decision-making.
- Integrate Marketing with various functions of business organization to create, capture, and deliver value.
- Apply digital tools in developing marketing strategies, organizational communication, business operations, and customer relations.
- Apply ethical problems within marketing and business situations, choose a resolution, and justify that ethical choice.
- Develop a global strategic marketing plan that addresses the global forces in the business environment of a firm.

Degree Requirements:

To receive a Master of Science in Marketing, students must complete 45 quarter units of graduate work. A total of 4.5 quarter units of transferred, graduate credit may be granted for equivalent graduate work ended, as it applies to this degree and if the units not used in earning another advanced degree.

Requirements for Major (10 courses; 45 Quarter units)
Core Requirements (6 courses; 27 quarter units)

MKT 602	Marketing Management	4.50
MKT 620	Consumer Behavior ***Prerequisite:*** *MKT 602*	4.50
MKT 631	Global Marketing ***Prerequisite:*** *MKT 602*	4.50
MKT 634	Market Research ***Prerequisite:*** *MKT 602*	4.50
MKT 651	Mobile Marketing ***Prerequisite:*** *MKT 602*	4.50
MKT 660A	Strategic Marketing ***Prerequisite:*** *MKT 602; MKT 620; MKT 631 and MKT 634*	4.50

Elective Requirements (4 courses; 18 quarter units)

Students must select four (4) of the following elective courses.

MGT 603	Business Operations Management	4.50
IBU 606	Global Business *Discontinued*	4.50
ECO 607	Eco. for Managerial Decisions *Discontinued* ***Recommended: Prior completion of:*** *MNS 601*	4.50
MKT 653	Social Media ***Prerequisite:*** *MKT 602*	4.50
IBU 637	Comparative International Mgt	4.50
SCM 610	Supply Chain Collaboration	4.50
IBU 641	Topics in Int'l Business	4.50
MGT 604	Project and Program Management	4.50

COM 610	Integrated Marketing Comm	4.50
IBU 645	Intl Entrepreneurship Project	4.50

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Master of Social Work

Doctoral Degrees

Class-Based

Doctor of Education in Organizational Innovation (EdD)

Academic Program Director: Teri Marcos; tmarcos@nu.edu

This program focuses on evolving Inspiring and Innovative educators who will potentially innovate and serve as notable change agents representing many disciplines and fields of study who have capabilities and the desire to transform public and private schools, businesses, organizations, military and government agencies in the United States and around the world. There is a required orientation at the beginning of the program. It has the option of attending either in person or virtually. All components of the program must be completed before starting the program

Admissions Requirements

The Ed.D. in Organizational Innovation is designed as both interdisciplinary and interagency program with a focus on creating visionary change agents and leaders who are involved at a high level with an education enterprise in a variety of organizations such as, government, military, business, community, education, non-profits, health care, and nursing. In this program, candidates will stay current with changes, understand how to view a problem of practice that would require an innovative approach. The program encourages candidates to learn from their own discipline as well as colleagues in other disciplines ensuring candidates have a rich experience. The program is seeking applicants who bring work experience in innovation, have strong communication skills and are prepared for the rigors of doctoral studies.

- Completed Online Application Form and Fee
- An earned bachelor's degree from an accredited institution
- An earned master's degree from an accredited institution with a minimum 3.0 grade-point average
- Curriculum Vitae or Resume
- Employer Endorsement Letter
- Two Letters of Reference which speak to the applicant's innovation, communication skills, and the preparedness for doctoral studies
- Personal Statement - please describe your current work, how you arrived at your desire to earn a terminal degree, and how you plan to apply your degree to your leadership both currently and in the future.
- Supplemental Questions - please complete the supplemental questions which will be forwarded to you by your Ed.D. student admissions advisor.
- Official transcripts which include all college and university coursework.
- International candidates: Applicants whose native language is not English are required to demonstrate English proficiency by providing proof of a minimum score of 213 on the computer-based Test of English as a Foreign Language (TOEFL) exam or 6.0 on the International English Testing System (IELTS) exam.

All applications will be reviewed by the Doctoral Faculty Admissions Committee. No single criterion alone determines the Doctoral Faculty Admissions Committee's decision to admit or deny an applicant. After review of all candidates, selected candidates will be invited to an interview as well as asked to complete a writing sample as part of the interview process.

Specialized Requirements: Upon admissions, each candidate is assigned a Faculty Advisor. Candidates are required to complete a minimum of 81 quarter-units beyond the master's degree which has been granted by an accredited university. The program is organized for the candidate to complete in 3 years. Candidates have a maximum of 7 years to complete the program.

Academic Performance Requirements: Doctoral candidates are required to maintain at least a 3.0 grade point average in their coursework throughout the program.

Transfer of Credit: Nine quarter hours may be transferred upon review and approval by doctoral faculty.

Continuous Enrollment: Candidates who do not complete their capstone project by the end of EDD 840 will be required to register for continuous enrollment until all requirements are met for the awarding of the degree**.**

Licensure: This program does not result in licensure.

Leave of Absence: Ed.D. candidates may apply for no more than two leaves of absence for a total of three quarters. The candidate may have no outstanding balance when applying for a leave. The leave must be approved by the Program Director. During the leave, the candidate will be considered on active status, but tuition will not be charged. The leave will count as part of the 7-year completion requirement. At the conclusion of the leave, the candidate must resume continuous enrollment until the degree is awarded.

Program Learning Outcomes:
Upon successful completion of this program, students will be able to:

- Evaluate internal and external factors that influence consideration of innovation adoption in educational enterprises.
- Examine human and organizational dynamics that influence implementation of innovation in educational enterprises.
- Analysis of relevant innovation and organizational theories influencing contemporary educational enterprises.
- Engage contemporary systems of data analysis that inform decisions pertaining to change in educational enterprises.
- Examine contemporary methodologies to incorporate human and organizational dynamics into the evaluation of innovation initiatives.
- Generate alternative solutions in determining whether to adopt an innovation into an educational enterprise.

Degree Requirements:

To receive a Ed.D. in Organizational Innovation students must complete 81 quarter units of doctoral work. There is a required orientation at the beginning of the program. The student has the option of attending either in person or virtually. All components of the program must be completed before starting the program. In addition, students must complete the capstone project. A total of 9 quarter units may be granted for equivalent graduate work completed, as it applies to aligning with coursework in this degree. The work must be at the doctoral level.

9 courses; 81-89 quarter units

EDD 800	Intro to Innovation in Ed	9.00
EDD 805	Innovation Theories & Applic	9.00
EDD 810	Theories, Methods of Inquiry	9.00
EDD 815	Seminar in Exemplary Pract	9.00
EDD 820	Consult, Collab & Ethical Prac	9.00
EDD 825	Culm Project Proposal	9.00
EDD 830	Knowledge Mgt for Innovation	9.00
EDD 835	Emerg Issues & Trends	9.00
EDD 840	Culminating Project	9.00

Optional Course requirements 1 course; 1-8 quarter units (repeatable up to 8 instances)

EDD 804	Individual Support/ Mentoring	1.00

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Doctor of Education in Instructional Design
Doctor of Philosophy in Instructional Design
Doctor of Philosophy in Psychology
Doctor of Philosophy in Computer Science
Doctor of Philosophy in Data Science
Doctor of Philosophy in Technology Management

Courses

Class-Based

BIO 100A Survey of Bioscience Lab (1.50) *Historical-Review all addendums*
Prerequisite: *BIO 100 for non-science majors (GE), or BIO 163 for science majors*
Duration: 4
Study of the unifying principles of life with emphasis placed on the following topics: molecular biology of the cell and cellular processes, including energy metabolism, membrane transport and cell division; classical and population genetics; as well as the mechanism of evolution and the evolutionary basis of species classification. Emphasis on the scientific method as applied in laboratory sciences, using demonstrations, experiments, and/or field trips. May include inquiry-based research activities.

BIO 163 General Biology 3 (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162*
Duration: 4
Morphology and physiology of multicellular organisms, particularly plants and animals. Concepts include plant structure and physiology, and comparative animal morphology and physiology. Intended for science majors.

BIO 169A General Biology Lab (1.50) *Historical-Review all addendums*
Prerequisite: *BIO 163; BIO 161; BIO 162*
Duration: 4
Laboratory course in general biology intended for science majors. Topics include the application of the scientific method, examination of cellular processes (eg. respiration, photosynthesis, mitosis, meiosis), Mendelian genetics, operation of basic laboratory equipment, taxonomic classification, and investigations of structure and function of prokaryotes, protists, fungi, plants, and animals.

BIO 310 Evolution (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A*
Duration: 4
Evolutionary biology. Topics include the history of life, fossil record, causes of microevolution (including natural selection and mutation), macroevolutionary processes (including speciation and extinction), evolutionary genetics and developmental biology ("evo-devo"), phylogeny construction and taxonomy.

BIO 330 Ecology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*
Duration: 4
A study of the relationship of plants and animals to their environment and to one another. Emphasizes populations, the population-community interface and community structure and interactions within the ecosystem.

BIO 406 Cellular Biology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 406A*
Duration: 8
Introduction to cellular biology, including fundamentals of cell structure and function, inter- and intracellular communication through signaling and signal transduction, cell growth and energy generation through aerobic respiration and photosynthesis. Examination of cellular events and analysis of specific case studies in cell biology.

BIO 406A Cellular Biology Lab (1.50) *Historical-Review all addendums*
Corequisite: *BIO 406;* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*
Duration: 8
This course emphasizes techniques essential to cellular biology, including cell culturing, Western blotting, ELISA, and DNA, RNA, and protein extractions.

BIO 407 Molecular Biology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 407A;* ***Prerequisite:*** *BIO 305*
Duration: 8
An introduction to molecular biology focusing on gene structure, organization, regulation and expression. Topics in genetic engineering and genome evolution are covered, as well as DNA replication, recombination, transcription and post-transcriptional mechanisms in both eukaryotic and prokaryotic cells.

BIO 407A Molecular Biology Lab (1.50) *Historical-Review all addendums*
Corequisite: *BIO 407;* ***Prerequisite:*** *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A; BIO 305*
Duration: 8
This course emphasizes techniques essential to molecular biology including DNA extraction, purification and quantification; polymerase chain reactions; and restriction enzyme digestion.

BIO 414 Invertebrate Zoology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 414A*
Duration: 4
Comparative study of invertebrates: taxonomy, structure, physiology, reproduction, evolution, and behavior.

BIO 416 Vertebrate Zoology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A;* ***Corequisite:*** *BIO 416A*
Duration: 4
Study of the life of Vertebrates integrating the anatomy, physiology, ecology, evolution and behavioral adaptations that enable them to survive effectively in their natural environment.

BIO 420 Animal Behavior (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 100A*
Duration: 4
Study of animal behavior, integrating genetic, physiological, ecological, and evolutionary perspectives.

BIO 440 Botany (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 169A; CHE 141; CHE 142; CHE 143; CHE 149A*
Duration: 4
Plant biology, including structure, function, evolution, taxonomy, and diversity of major groups of plants.

BIO 450 Natural History of California (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161; BIO 162; BIO 163; BIO 100A, or BIO 100; BIO 100A*
Duration: 4
Study of the flora, fauna, and biomes of California. This course includes field trips, with sites selected for each academic center within the University.

BIO 460 Marine Biology (4.50) *Historical-Review all addendums*
Prerequisite: *BIO 161 with a minimum grade of C. Student must have taken General Biology or equivalent ; BIO 162 with a minimum grade of C. Student must have taken General Biology or equivalent ; BIO 163 with a minimum grade of C. Student must have taken General Biology or equivalent*
Duration: 4
Global approach to the science of marine biology. Study of life in the marine environment and the structure and function of various marine ecosystems such as coral reefs, mangroves, and estuaries. Analysis and evaluation of the human impact on ocean ecology.

BIO 470 Bioinformatics (4.50) *Historical-Review all addendums*
Corequisite: *BIO 470A;* ***Prerequisite:*** *BIO 161 with a minimum grade of C-. Student must have passed the class with a C- or better; BIO 162 with a minimum grade of C-. Student must have passed the class with a C- or better; BIO 163 with a minimum grade of C-. Student must have passed the class with a C- or better*
Duration: 8
Analysis of biotechnology-related information using software tools to store, manipulate, and extract information from protein and nucleic acid sequence data. Topics include genome annotation, gene and protein prediction, sequence alignment, and analysis of aligned sequences in the description of patterns of protein or species relationships and gene expression.

CYB 204 Operating System Fundamentals (4.50)
Prerequisite: *CYB 202*
Duration: 4
An introduction to the basic architecture and functions of an operating system. Computer hardware and software integration will be explored. Basic design and functionality of the Windows and Linux operating systems will be explored. In addition, core aspects of securing operating systems are covered.

CYB 206 Introduction to Cybersecurity (4.50)
Prerequisite: *CYB 204*
Duration: 4
An introductory survey course that explores the fundamental concepts of cybersecurity. Coverage includes the concepts of confidentiality, integrity, and availability, cybersecurity policy, and the ethical and legal aspects of cybersecurity.

CYB 213 Data Fundamentals for Cybersec (4.50)
Prerequisite: *CYB 206*
Duration: 4
The principles of data security are introduced. Students will learn how to protect data in transit and at rest. The technical aspects of implementing encryption, authentication, and access control to protect data will be covered along with the development and implementation of associated policy. Basic database security concepts and guidelines will be covered.

CYB 215 Fund of Virt and Cloud Comp (4.50)
Prerequisite: *CYB 213*
Duration: 4
This course introduces the fundamental concepts of cloud computing and virtualization. The core cloud deployment and service models will be covered. A comparison of public and private cloud deployments will be conducted. The concepts of devops and continuous integration will be introduced.

CYB 332 Secure Windows Administration (4.50)
Prerequisite: *CYB 331*
Duration: 4
This course covers the secure administration of Windows based Desktop and server systems. Students will learn how to implement and assess standards based security measures on Windows based operating systems. Automating the implementation and assessment of security measures will be a core component of the class. Legal and ethical aspects of system administration will also be covered.

CYB 333 Security Automation (4.50)
Prerequisite: *CYB 332*
Duration: 4
This course builds on CYB 216 and covers advanced topics in security automation. Students will learn how to manage security related code in a software repository. Students will write integrated scripts to implement and assess system security. Use of devops automation tools to securely manage infrastructure will also be covered.

CYB 453 Network Defense (4.50)
Prerequisite: *CYB 452*
Duration: 4
A detailed examination on the concepts of network defense and the various tools to protect and monitor a network. Students will learn how to implement an Intrusion Detection System, conduct network monitoring traffic analysis, and honeypots. Development of associated policy will also be covered.

CYB 455 Network Data Analysis (4.50)
Prerequisite: *CYB 453*
Duration: 4
A detailed examination of the collection and analysis of Computer and Network Log Data to detect cyber-attacks. Students will utilize a Security and Information Event Management (SIEM) tool to analyze various data. This course will focus on using a SIEM like Splunk or the ELK stack.

CYB 460 Operating System Security (4.50)
Prerequisite: *CYB 454*
Duration: 4
An advanced examination of securing Windows and Linux operating systems. Detecting and preventing operating system attack will also be covered. The course will focus on the use of security automation tools to secure and monitor multiple operating systems.

CYB 470 Intro to Digital Forensics (4.50)
Prerequisite: *CYB 454*
Duration: 4
Introduction of computer forensic principles. The class explores the concepts of admissibility of electronic evidence, preparing for e-evidence collection, and conducting a digital forensic examination of computers. Legal and ethical requirements of a digital investigator are also covered.

CYB 480 IT Hardware (4.50)
Prerequisite: *CYB 454*
Duration: 4
This course provides an understanding of the internal and external components of an information technology (IT) system. The course contains an overview of internal components and broadens out to an entire IT system. Students will be introduced to the proper installation, security, and administration of components of an IT system. In addition, network, mobile, IoT, and printer terminology, concepts, troubleshooting, and security fundamentals are also covered.

EDC 612A Fieldwork Experience A (4.50)
Prerequisite: *EDC 600; EDC 601; EDC 602; EDC 603; EDC 604; EDC 605A; EDC 605B; EDC 606; EDC 607; EDC 608; EDC 609; EDC 610; EDC 611*
Duration: 16
This course focuses upon the experiences school counseling students are engaged in during program-approved field placements. Students participate in supervision in PK-12 public school settings in conjunction with the course instructor, which includes group supervision with their peers and a self-care plan. This course is for students in their first term of fieldwork.

EDC 612B Fieldwork Experience B (4.50)
Prerequisite: *EDC 612A*
Duration: 16
This course focuses upon the experiences school counseling students are engaged in during program-approved field placements. Students participate in supervision in PK-12 public school settings in conjunction with the course instructor, which includes group supervision with their peers and a self-care plan. This course is for students in their second term of fieldwork.

EDC 614A Exploration of CC Counseling (4.50)
Prerequisite: *EDC 600; EDC 601; EDC 602; EDC 603; EDC 604; EDC 605A; EDC 605B; EDC 606; EDC 607; EDC 608; EDC 609; EDC 610; EDC 611*
Duration: 8
The course provides an overview of community colleges in the United States including history, multiple missions, structure of community colleges, policies, operation, and the varying roles/divisions, and functions of each. A brief examination of the functions of community college counseling divisions, visions, missions provide the candidate a foundation of understanding of the role of the community college counselor.

EDC 614B Exploration of CC Counseling (4.50)
Prerequisite: *EDC 614A*
Duration: 8
The course provides an in depth understanding of community college counseling divisions in the United States. Candidates further explore the history, missions, structure of community colleges, and the policies and functions that impact student success. An inquiry into the functions of community college counseling divisions, visions, missions provides the candidate with an understanding of the role of the community college counselor and counseling structures through a Diversity, Equity, and Inclusive lens.

EDD 840 Culminating Project (9.00)
Duration: 12
The finalized problem of practice project becomes the Culminating Project and is aligned to all Program Learning Outcomes. This project will be defended at the conclusion of these courses based on a program-approved rubric. The course is designed to allow the candidate and the Advisor to work in a one-on-one fashion, but also collaborate with committee members, when necessary. Teleconferencing sessions are used to connect candidates within the cohort throughout the 12-week experience.

EGR 316 Legal&Ethicl Const/Engr Issues (4.50) *Historical-Review all addendums*
Duration: 4
Course focuses on basic principles and new developments in the legal aspects of architectural, engineering and construction processes. Coverage includes contractor licensing, professional design services, liability, intellectual property, and competitive bidding.

MKT 660A Strategic Marketing (4.50)
Prerequisite: *MKT 602; MKT 620; MKT 631 and MKT 634*
Duration: 4
This capstone course allows students to put into practice key skills they have learned that address the need to understand more than just traditional marketing principles, as well as helps explain how to research and design effective, long-range marketing strategies that meet the demands of today's dynamic consumer and business environment. Students will explore marketing management decision-making with a variety of strategic marketing models, consumer attitudes and behaviors, niche marketing and other strategic marketing approaches, advertising strategies, distribution channels, a wide variety of marketing media, including new marketing trends of real-time, inbound, and social media marketing.

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ID 8900 - Foundations of Instr. Design
ID 8910 - Models of Instructional Design
ID 8920 - Theor. Fdn.of Instr. Practice
ID 8930 - Interactive Media Design
ID 8940 - Accessible Design in ID
ID 8950 - Project Management
ID 8960 - Applied Design & Development
MKT 660A - Strategic Marketing
MSW 5000 - Introduction to Social Work
MSW 5001 - Human Behavior and the Soc Env
MSW 5002 - Prof Practice with Ind & Fam
MSW 6002 - Social Welfare Policy
MSW 6003 - Prof Practice with Org & Com
MSW 6004 - SW in Behavioral Health

MSW 6005 - Ethics and Diversity in SW
MSW 6007 - Research Methods in SW
MSW 6008 - SW in Interdisc Settings
MSW 6009 - Generalist Practicum I
MSW 6010 - Generalist Practicum II
MSW 6101 - Adv SW with Children & Fam
MSW 6102 - Adv SW Prac Marginalized Popul
MSW 6103 - Adv SW Med Prac
MSW 6104 - Adv SW in Mental Health
MSW 6105 - Forensic SW Clinical Prac
MSW 6106 - Adv Lead Skills Clinical Prac
MSW 6901 - Adv Prac I
MSW 6902 - Adv Practicum II
MSW 6903 - Capstone
MSW 6903CA - Capstone
PSY 7500 - Advanced Quantitative Methods
PSY 7501 - Advanced Qualitative Methods
TIM 7011 - Mgmt of Computer Networks
TIM 7031 - Mgmt Risk/Sec/Privacy Systems
TIM 7250 - Research Design in DataScience
TIM 7255 - Adv Rsrch Dsgn in Data Science
TIM 8122 - Dist Algorithms/Parallel Comp
TIM 8131 - Data Mining
TIM 8521 - Statistical Modeling
TIM 8536 - Current Topics in Data Science
TIM 8555 - Predictive Analysis