

Student Learning Outcomes for NOVA's Degree-Awarding Programs and Select Certificates

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OFFICE OF INSTITUTIONAL EFFECTIVENESS AND STUDENT SUCCESS

The purpose of the Office of Institutional Effectiveness and Student Success is to conduct analytical studies and provide information in support of institutional planning, policy formulation, and decision making. In addition, the office provides leadership and support in research related activities to members of the NOVA community engaged in planning and evaluating the institution's success in accomplishing its mission.

When citing data from this report, the Northern Virginia Community College (NOVA) Office of Institutional Effectiveness and Student Success must be cited as the source.

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Introduction

As part of the current nation-wide movement to increase accountability and transparency in higher education, Northern Virginia Community College (NOVA) has made the assessment of student learning outcomes a priority. Assessment is defined as “the ongoing process of:

- Establishing clear, measurable expected *outcomes* of student learning.
- Ensuring that students have sufficient *opportunities* to achieve those outcomes.
- Systematically gathering, analyzing, and interpreting *evidence* to determine how well student learning matches our expectations.
- Using the resulting information to understand and *improve* student learning.”¹

To begin the process of assessing student learning, programs must first determine the student learning outcomes for their curriculum. Student learning outcomes are defined as “the accumulated knowledge, skills, and attitudes that students develop during a course of study.”²

NOVA determined that all degree-awarding programs and select certificates must each designate one faculty member to oversee the program’s/certificate’s assessment efforts. In order to provide support to programs and their designated faculty (called SLO Lead Faculty), the Office of Institutional Effectiveness and Student Success (OIESS) regularly offers workshops devoted to writing and assessing student learning outcomes and using results from student learning outcomes to improve student learning. Since beginning these workshops in Spring 2009, each program has had at least one faculty member attend a session. Additionally, OIESS provides a variety of online resources to support the SLO assessment process.³

In Fall 2009, SLO Lead Faculty submitted student learning outcomes for their respective programs/certificates. Programs are asked to review their SLOs annually and update them when necessary. The most recent student learning outcomes have been compiled into this report. As defined above, establishing student learning outcomes is only the first step in the ongoing cycle of assessment. Once student learning outcomes are established programs develop methods to assess the student learning outcomes and gather data to make evidence-based decisions to increase student learning. Information from these assessments are detailed each year in the Annual Planning and Evaluation Reports; these reports can be found online at <https://www.nvcc.edu/college-planning/reports.html>.

¹ Linda Suskie, *Assessing Student Learning: A Common Sense Guide*. Anker Publishing, 2004.

² For more information, see <http://web.virginia.edu/iaas/assess/resources/learningoutcomes.shtm>.

³ For more information, see <http://www.nvcc.edu/assessment/index.html>

**Student Learning Outcomes for
NOVA's Degree-Awarding Programs
and Select Certificates**

Accounting, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Pamela Parker, AL

- Apply generally accepted accounting principles (GAAP).
- Be able to describe federal tax rules and apply them in preparing individual income tax returns.
- Describe and make distinctions between the various taxable entities (i.e., individuals, corporations and partnerships).
- Use budgeting and product costing techniques and methods to evaluate business operations.
- Identify generally accepted auditing standards (GAAS) and the additional requirements imposed by the Sarbanes-Oxley Act.
- Access the various technical and professional publications to use as reference sources.
- Write and speak in English well enough to communicate accounting procedures and concepts in a professional environment.
- Describe and make distinctions between various accounting methods under U.S. GAAP and international financial reporting standards (IFRS).

Administration of Justice, A.A.S.

Pathway Dean: Evette Hyder-Davis, MA

SLO Lead Faculty: Timothy Dickinson, AL

- Name and describe the steps in the criminal adjudication process that involve the police, the courts, and corrections.
- Define the basic teachings of criminology, criminalistics, criminal justice, and forensic science.
- Describe how crime is measured by the means of the Uniform Crime Report, National Crime Victimization Survey, Self-Report data, and the National Incident-Based Reporting System.
- Define generally: domestic and international terrorism, organized crime, classified information, and proprietary information.
- Identify and explain the major perspectives concerning crime causation including the classical approach, biological approach, psychological approach, and the sociological approach.
- Present a PowerPoint presentation of an ethical dilemma or case study relating to a criminal justice issue.
- Articulate and explain the rights of citizens contained in the Fourth, Fifth, and Sixth Amendments related to any one specific case within the criminal justice system.
- Explain basic investigative concepts relating to crime.
- Describe the elements of at least five (5) crimes.

- Identify a basic understanding of law enforcement, the courts, and the correction system development of a course of study on at least one criminal justice area.

Air Conditioning and Refrigeration, A.A.S.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Martin Kang, WO

- Technical knowledge and capabilities: Design, install, maintain, and repair a basic residential air conditioning and heating system.
- Problem prevention and solutions: Analyze an HVACR system's current operation, evaluate its ability to adequately provide for the equipment owner's comfort requirements, and if necessary, formulate a strategy to correct any deficiencies.
- Presentation, manners, reliability, and safety: Demonstrate the ability to choose attire appropriate to the HVACR customers being served, utilize appropriate manners that will please a diverse population of possible customers, and demonstrate they may be relied upon to perform required duties properly, safely, and on time.
- Positive attitude and works well with others: Demonstrate a positive attitude and have a good working relationship with peers.
- Honesty, ethical behavior, and respect: Assess and demonstrate what is considered honest and ethical behavior in both personal and business situations. Demonstrate respect for others.
- Speech and written communication skills: Perform good communication skills, both oral and written.
- Empathy with both customer and employer: Analyze customer concerns, empathize with their position, and be able to differentiate between the demands of the customer and the position of the technician's employer.
- Priorities and self-image: Demonstrate the ability to set priorities. Demonstrate an ability to perform a personal analysis and evaluation in order to determine an accurate self-image and to formulate a program for improvement, if necessary.
- Productive: Perform good work habits, focus on the task-at-hand, and complete assignments on time.
- Continued improvement in knowledge and skills: Evaluate what additional skills or knowledge may be necessary for personal success, then choose a positive direction to attain them.

American Sign Language to English Interpretation, A.A.S.

Pathway Dean: Jennifer Daniels, AN

SLO Lead Faculty: Paula Reece, AN

- Students will demonstrate an advanced level of receptive and expressive proficiency in American Sign Language, including knowledge of advanced linguistic structures and vocabulary.
- Students will demonstrate an advanced level of receptive and expressive proficiency in English, including knowledge of advanced linguistic structures and vocabulary.
- Students will demonstrate the ability to interpret a 20 minute live and videotaped segment of American Sign Language into English with 80% accuracy.
- Students will demonstrate the ability to interpret a 20 minute live and videotaped segment of English into American Sign Language with 80% accuracy.

- Students will demonstrate the ability to transliterate a 20 minute live and videotaped segment of Contact Sign into English with 80% accuracy.
- Students will demonstrate the ability to transliterate a 20 minute live and videotaped segment of English into Contact Sign with 80% accuracy.
- Students will apply critical thinking to make ethical decisions regarding a variety of situations, guided by ethics standards of the professional.
- Students will demonstrate professional behavior and cultural sensitivity when working with Deaf and hearing clients.
- Students will demonstrate the ability to evaluate an interpreting situation, choose the appropriate language/ communication method, manage the environment, and work with team interpreters if available.
- Students will be able to describe the history of the interpreting profession and identify current trends, industry standards, and resources for professional development.

Architecture Technology, A.A.S.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Nazanin Saidi, AN

- Students will be able to communicate graphically the architectural aspects of a building for the purposes of presentation and construction using manual drawing.
- Students will be able to describe how buildings are presently constructed.
- Students will be able to describe and analyze the ethics of designing sustainable environments.
- Students will be able to describe and analyze how buildings are structurally supported.
- Students will be able to describe the systems of heating, cooling and electrical distribution in buildings.
- Students will be able to describe how site characteristics influence the design and construction of buildings.
- Students will be able to communicate graphically the architectural aspects of a building for the purpose of presentation and construction using computer graphics.
- Students will be able to methodically design a building.

Automotive Technology, A.A.S.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Laura Garcia-Moreyra, AL

- Use measuring tools to skillfully and accurately diagnose the internal combustion engine.
- Diagnose transmission/transaxle gear reduction/multiplication concerns using driving, driven, and held member (power flow) principles using a range reference chart.
- Measure drive pinion bearing preload and ring gear backlash and backlash variation to compare to specifications in order to determine necessary corrective actions.
- Perform preliminary inspections and procedures needed to prepare a vehicle for a four-wheel alignment by checking and assessing vehicle ride height, tire condition, and inflation.
- Inspect and measure a rotor with a dial indicator and micrometer to determine the serviceability of the rotor.

- Apply electrical theory using wiring diagrams and schematics to diagnose and repair automotive electrical circuits.
- Research applicable vehicle and service information, vehicle service history, service precautions, technical service bulletins, and components for automotive heating and ventilation systems.
- Retrieve diagnostic trouble codes and monitor status using a scan tool. Using the scan tool data and wiring diagrams, determine the next logical step in the drivability diagnostic process.

Biotechnology, A.A.S.

Pathway Dean: Diane Mucci, MA

SLO Lead Faculty: Xin Zhou, MA

- Explain the fundamental scientific concepts in biotechnology.
- Apply the scientific method including: planning an experiment, collecting data, and analyzing and interpreting data.
- Demonstrate proficiency in standard lab procedures and in the use of basic lab equipment.
- Effectively communicate scientific concepts, strategies, and opinions in written and oral formats.
- Describe the ethical and regulatory aspects of the biotechnology industry.
- Describe the business and legal aspects of the biotechnology industry.
- Demonstrate professional communication and interpersonal skills necessary for working in a collaborative environment.
- Demonstrate proficiency in standard lab calculations.

Business Administration, A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Kabir Jamal, AL

- Students will be able to identify the various forms of business ownership (*sole proprietorship, partnership and corporation*) and the multiple ways of getting a business started.
- Students will be able to calculate the basic impact of marginal cost for the production of goods in a capitalist system.
- Students will be able to describe the various theories related to the development of leadership skills, motivation techniques, teamwork, and effective communication.
- Students will be able to construct the basic elements of a balance sheet and income statement utilizing the appropriate accounting equations.
- Students will be able to utilize computer skills through the Internet, word processing, and other productivity software to construct reports and presentations in the study of current business practices.
- Students will apply the planning, organizing, leading, and control processes of management in identifying the various theories related to the development of leadership skills.
- Students will be able to identify the properties of market equilibrium and the creation of market shortages and surpluses within the scope of supply and demand.

- Students will be able to identify the factors of production in the creation of goods and services in an economic society.

Business Management, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Kabir Jamal, AL

- Students will be able to identify the various forms of business ownership (*sole proprietorship, partnership and corporation*) and the multiple ways of getting a business started.
- Students will be able to identify parties in a legal dispute within the fundamental types of business organizations (sole proprietorship, franchise, partnership, corporation, Limited Liability Company, and limited liability partnership).
- Students will be able to calculate the basic impact of marginal cost for the production of goods in an economic system.
- Students will be able describe the various theories related to the development of leadership skills, motivation techniques, teamwork, and effective communication.
- Students will be able to construct the basic elements of a balance sheet and income statement utilizing the appropriate accounting equations.
- Students will be able to utilize computer skills through the Internet, word processing, and other productivity software to construct reports and presentations of current business practices.
- Students will apply the planning, organizing, leading, and control processes of management in identifying the various theories related to the development of leadership skills.
- Students will be able to identify the properties of market equilibrium and the creation of market shortages and surpluses within the scope of supply and demand.
- Students will be able to identify the factors of production in the creation of goods and services in an economic society.
- Students will be able to differentiate the ethical codes of compliance and integrity used by business organizations.
- Students will be able to identify various challenges facing the management of human resources.
- Students will be able to generate a summary report of sample data using graphs and descriptive measures.

Computer Science, A.S.

Pathway Dean: Alison Thimblin, AN

SLO Lead Faculty: Larry Shannon, AN

- Demonstrate techniques for problem analysis and algorithm design.
- Write computer programs using fundamental software development skills.
- Perform elementary file and directory-related activities using GUIs and command-line interfaces.
- Demonstrate proficiency in mathematical modeling using a high or low level programming language.
- Write computer programs using object-oriented programming features
- Demonstrate critical thinking by applying appropriate data structures and Abstract Data Types (ADTs).

- Show the ability to work in groups to design and execute programs to solve problems.
- Design fundamental logic circuits.
- Identify the functions of basic and advanced computer hardware architecture.

Construction Management Technology, A.A.S.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Siamak Ghorbanian, AL

- Students will communicate effectively consistent with career requirements of the construction management industry (orally and written).
- Students will accurately interpret construction documentation.
- Students will identify characteristics of basic construction materials and explain their application in the construction industry.
- Students will accurately estimate construction costs.
- Students will accurately prepare construction plans and schedules utilizing industry standards.
- Students will identify safe construction practices.
- Students will be able to interpret construction related contractual and legal requirements.
- Students will perform surveying calculations necessary for site layout.
- Students will successfully identify and demonstrate skills necessary to manage human resources related to the construction industry.

Contract Management, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Charles Taylor, WO

- Students will be able to conduct market research in accordance with the Federal Acquisition Regulation (FAR).
- Students will be able to apply sound strategic acquisition planning so that informed business decisions can be made on behalf of the government.
- Students will be able to prepare project schedules for contract implementation.
- Students will be able to apply fundamental contracting techniques by utilizing the basic Federal contracting processes: i.e., cost estimation procedures, requirement determinations, and characteristics of best value analysis.
- Students will be able to independently apply contract administration programs in support of Federal contracts.
- Students will be able to conduct cost and price analysis of request for proposal in order to establish negotiation positions.

Cybersecurity, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Margret Leary, AL

- Manipulate data into meaningful information.

- Create simple scripts/programs to automate and perform simple operations, including how to perform basic security practices in developing scripts/programs (e.g. bounds checking, input validation).
- Describe current threats and explain how to continuously monitor the threats that may be present in the cyber realm.
- Identify the options available to mitigate threats within a system.
- Apply basic security design fundamentals that help create systems that are trustworthy.
- Describe the basic concepts of information assurance fundamentals.
- Explain where and how cryptography is used.
- Describe the basic components in an information technology system and their roles in system operation.
- Identify network components and describe how they interact.
- Explain basic operations involved in system administration
- Perform basic operations involved in system administration.

Dental Assisting Certificate

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Lisbeth Shewmaker, ME

- Students will be able to chart oral conditions.
- Students will be able to perform chair side dental assisting duties.
- Students will be able to perform dental assisting expanded duties.
- Students will be able to perform dental laboratory procedures.
- Students will be able to perform dental practice management procedures.
- Students will be able to expose diagnostic dental radiographic surveys.
- Students will be able to manage dental protocols for infection control practices and biohazard waste.
- Students will be able to identify legal and ethical aspects of clinical practice.

Dental Hygiene, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Marina McGraw, ME

- Assess a patient's oral health status.
- Plan and document a patient's treatment needs.
- Evaluate the outcomes of treatment and determine subsequent treatment needs.
- Expose radiographs.
- Interpret radiographs.
- Communicate the provision of oral health care services with diverse population groups.
- Evaluate and apply scientific literature and principles as a basis for evidenced-based practice.
- Provide care to a diverse population who present with slight, moderate, and advanced periodontal disease and other oral conditions.
- Recognize the importance for discerning and managing ethical issues consistent with professional code of ethics.

Diagnostic Medical Sonography, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Leigh Giles-Brown, ME

- Provide high-quality patient care in an ethical, legal, safe, and effective manner.
- Integrate patient history, current medical condition, and sonographic findings to provide accurate diagnostic information.
- Apply principles of ultrasound physics in the operation of medical sonographic equipment to recognize and perform image optimization techniques.
- Identify relational anatomy, proper diagnostic imaging techniques, and sonographic appearances of anatomical structures.
- Evaluate ultrasound images for diagnostic information and pertinent technical details.
- Practice professional work habits and appropriate interpersonal relationships in a clinical setting when working with clinical staff, other healthcare providers, and/or physicians.

Drivers Education, C.S.C.

Pathway Dean: Evette Hyder-Davis, MA

SLO Lead Faculty: Nicole Mancini, MA

- Students will distinguish VA driving rules and laws that are necessary to teach Drivers Education in Virginia using the VADETS final exam.
- Students will be able to create a competent classroom lesson plan for Driver Education students under the age of 19.
- Students will be able to create a competent behind the wheel lesson plan for Driver Education students under the age of 19.
- Students will be able to create a skills worksheet/outline to be used for their lessons in behind the wheel.
- Students will be able to design a proper behind the wheel driving route.
- Students will demonstrate proficiency in their own driving skills as demonstrated on the range.

Early Childhood Development, A.A.S.

Pathway Dean: Evette Hyder-Davis, MA

SLO Lead Faculty: Susan Johnson, LO

- Apply developmental knowledge to the creation and implementation of activities and programs to promote the development of all children.
- Design strategies for building relationships, and working with diverse families and communities.
- Using observation techniques assess development and effective practices with children, families, and programs.
- Applying developmental theories and early childhood program model components, select educational strategies appropriate for the learning environment.
- Create curriculum that integrates content and developmental knowledge.
- Using the basic tenets of professionalism, and best practices, demonstrate one's growth and development.

Emergency Medical Services, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Gary Sargent, ME

- Utilizing a simulation mannequin, students will be able to establish and maintain a patent airway, and oxygenate and ventilate a patient utilizing basic airway maneuvers and adjuncts.
- EMS Advanced Life Support Student will demonstrate competent effective behavior related to emergency medical care, as measured by the Northern Virginia Community College EMS Program Affective Behavior Assessment tool.
- When presented with a patient experiencing a medical emergency, students will be able to perform a scene size-up, conduct a primary assessment, take a patient history appropriate to the patient's condition, obtain vital signs, and intervene in accordance with relevant, established standards of care.
- When presented with a patient exhibiting signs & symptoms of a fracture, the student will be able to select the appropriate immobilization device, and properly immobilize the affected area.
- When presented with a 6-second static cardiac rhythm strip, the student will be able to correctly identify the rhythm, classify the patient's condition as "stable" or "unstable," select the appropriate treatment algorithm, and list the appropriate electrical and/or pharmacological therapy indicated in a timely manner.
- When presented with a patient experiencing a traumatic injury, students will be able to perform a scene size-up, conduct a primary assessment, take a patient history appropriate to the patient's condition, obtain vital signs, and intervene in accordance with relevant, established standards of care utilizing multiple available basic and advanced intervention techniques.

Engineering, A.S.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Rudy Napisa, AN

- Students will apply and demonstrate engineering problem solving methodology.
- Students will understand engineers' professional responsibility and ethics.
- Students will demonstrate the ability to design algorithm in solving engineering problems.
- Students will be able to analyze the position of rigid bodies and their applied forces at rest and in motion.
- Students will demonstrate knowledge of mechanics of deformable bodies.
- Students will demonstrate ability to work effectively as a team.

Engineering Technology, A.A.S.

Pathway Dean: Paula Ford (Interim), WO

SLO Lead Faculty: John Sound, MA

- Students will be able to apply their knowledge and skills of Computer Aided Drafting to start and complete engineering drafting projects.
- Students will demonstrate the appropriate preparation to perform the functions of an engineering aide or designer in the Engineering Technology field.

- Students will be able to apply the principles of mechanics including fluid mechanics in the analyses and solutions of engineering problems and designs.
- Students will be able to synthesis their knowledge of the fundamentals and practices of engineering technology.
- Students will demonstrate professional skills in oral, written and graphical communication.
- Students will demonstrate interpersonal skills to function as part of a team.

Fire Science Technology, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Gary Sargent, ME

- Students will be able to explain the basic theories and fundamentals of how and why fires start, spread, and are controlled.
- Students will be able to identify and analyze the components of building construction related to fire and life safety, including inspections, pre-incident planning, and emergency operations.
- Students will be able to explain and perform basic responsibilities of company officers including supervision, delegation, problem solving, decision-making, communications, and leadership as defined by NFPA 1041.
- Students will be able to explain the basic philosophy, organization, and operation of fire and injury prevention programs.
- Students will be able to apply the theory and principles for the use of water in fire suppression activities, including hydraulic principles.

General Studies, A.S.

Pathway Dean: Barbara Hopkins, AN

SLO Lead Faculty: Rima Gulshan, AN

- Students will demonstrate the ability to interact with others, resulting in understanding and being understood.
- Students will demonstrate the ability to evaluate evidence carefully and apply reasoning to decide what to believe and how to act.
- Students will demonstrate an awareness, understanding, and appreciation of the interconnectedness of the social and cultural dimensions within and across local, regional, state, national, and global communities.
- Students will demonstrate the ability to recognize when information is needed and will have the ability to locate, evaluate, and use if effectively.
- Students will demonstrate the ability to develop and/or refine personal wellness goals.
- Students will demonstrate the ability to use numerical, geometric, and measurement data and concepts, mathematical skills, and principles of mathematical reasoning to draw logical conclusions and to make well-reasoned decisions and possess the skills and knowledge necessary to apply the use of logic, numbers, and mathematics to deal effectively with common problems and issues.
- Students will demonstrate the ability to adhere to a self-correcting system of inquiry (the scientific method) and rely on empirical evidence to describe, understand, predict, and control natural phenomena.

Graphic Design, A.A.S.

Pathway Dean: David Epstein, WO

SLO Lead Faculty: Dwayne Treadway, LO

- To research, formulate visual and written concepts, and solve visual ideas.
- To analyze and evaluate artwork from various perspectives and apply to projects.
- To receive suggestions and criticisms of his or her own work from others and consider the recommendations and apply these recommendations to their final assignments.
- To evaluate visual concepts.
- To design visual concepts based on set criteria.
- To produce visual concepts into completed projects.
- To consider and apply technical and conceptual expertise in the creation of visual concepts.
- To apply the principles of design and elements of composition.
- To choose appropriate techniques and technical tools when expressing visual concepts.
- To organize a group to produce solutions to design problems.

Health Information Management, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Jacqueline Gibbons, ME

- Apply diagnosis/procedure codes according to current guidelines.
- Analyze the documentation in the health record to ensure it supports the diagnosis and reflects the patient's progress, clinical findings, and discharge status.
- Apply policies and procedures to ensure the accuracy and integrity of health data.
- Differentiate the roles and responsibilities of various providers and disciplines to support documentation requirements throughout the continuum of healthcare.
- Apply healthcare legal terminology and identify the use of legal documents.
- Apply policies and procedures surrounding issues of access and disclosure of protected health information.
- Utilize software in the completion of HIM processes.
- Apply report generation technologies to facilitate decision-making.
- Analyze policies and procedures to ensure organization compliance with regulations and standards.
- Assess how cultural issues affect health, healthcare quality, cost, and HIM.

Horticulture Technology, A.A.S.

Pathway Dean: Diane Mucci, MA

SLO Lead Faculty: Anders Vidstrand, LO

- Diagnose plant problems and recommend proper controls.
- Correctly Identify plants by Family, Scientific name (Genus, specific epithet, variety and/or subspecies), Cultivar if appropriate, and common name.
- Correctly identify parts of a plant under microscope or as a sample.
- Use library, internet, and professional resources to prepare proper horticultural information to prepare and write an informational, research or opinion paper.

- Calculate areas and volumes of landscape features and amounts of required materials.
- Neatly draw and correctly label a landscape plan.
- Prepare a one- or two-point perspective drawing from a landscape plan view drawing.
- Correctly draw an axonometric detail of a joinery of a landscape feature.

Hospitality Management, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Jill Guindon-Nasir, AN

- Students will compare the various sectors of the hospitality industry and recognize the unique characteristics and attributes of each and their effect on quality of work life.
- Students will describe and apply the four functions of management: plan, organize, lead, and control.
- Students will prepare and evaluate a variety of different food products by following standardized recipes and using appropriate cooking techniques.
- Students will scale, standardize, and cost out recipes.
- Students will illustrate the proper use and care of commercial food production equipment.
- Students will apply approved food handling/safety standards in the preparation, service, and storage of food.
- Students will actively participate in the execution of different styles of catering functions.

Information Systems Technology, A.A.S.

Pathway Dean: Paula Ford (Interim), WO

SLO Lead Faculty: Moses Niwe, AL

- Be able to design problems using procedural and object oriented design, and implement, sequence, select, and loop structures within the design solution.
- Be able to define normalization and define why it is necessary in the creation of a relational database.
- Be able to describe memory types and allocation methods.
- Be able to define the OSI reference model and layers.
- Be able to identify correct syntax and logic in a programming language.
- Be able to identify terminology, correct syntax, and appropriate uses of graphics, animation, and XHTML for a successful multimedia website.
- Be able to recognize the impact of cyber ethics on the IT field.
- Be able to list the advantages and disadvantages of the UNIX operating system.

Information Technology, A.S.

Pathway Dean: Paula Ford (Interim), WO

SLO Lead Faculty: Moses Niwe, AL

- Be able to design problems using procedural and object oriented design, and implement, sequence, select, and loop structures within the design solution.
- Be able to define normalization and define why it is necessary in the creation of a relational database.

- Be able to describe memory types and allocation methods.
- Be able to define the OSI reference model and layers.
- Be able to identify correct syntax and logic in a programming language.
- Be able to identify terminology, correct syntax, and appropriate uses of graphics, animation, and XHTML for a successful multimedia website.

Interior Design, A.A.S.

Pathway Dean: David Epstein, WO

SLO Lead Faculty: Kristine Winner, LO

- Students will apply technical drawing skills to graphically illustrate design concepts.
- Students will utilize basic building and accessibility codes related to the health, safety, and welfare of the public to develop interior floor plans.
- Students will practice business management including estimating, marketing, business structures, and ethics as they relate to the field of interior design.
- Students will recognize and evaluate appropriate interior finish materials and textiles particularly as they relate to issues of sustainability.
- Students will apply critical, analytical, and strategic thinking skills in the interpretation of project requirements.
- Students will recognize and identify major styles of art, architecture, and furniture and be able to explain their significance in relation to the design of the present day.
- Students will demonstrate presentation skills including technical skills required to develop finish boards and oral skills to convey ideas.
- Students will develop accurately scaled floor plans including furniture and fixtures as well as other construction drawings needed to convey information to a furniture installer or building contractor.
- Students will produce design projects utilizing basic color theory.
- Students will illustrate how to light an interior space using a variety of sources of illumination.

Liberal Arts, A.A.

Pathway Dean: Jimmie McClellan, AL

SLO Lead Faculty: Rima Gulshan, AN

- Students will demonstrate the ability to interact with others, resulting in understanding and being understood.
- Students will demonstrate the ability to evaluate evidence carefully and apply reasoning to decide what to believe and how to act.
- Students will demonstrate an awareness, understanding, and appreciation of the interconnectedness of the social and cultural dimensions within and across local, regional, state, national and global communities.
- Students will demonstrate the ability to recognize when information is needed and will have the ability to locate, evaluate, and use it effectively.
- Students will demonstrate the ability to develop and/or refine personal wellness goals.
- Students will demonstrate the ability to use numerical, geometric, and measurement data and concepts, mathematical skills, and principles of mathematical reasoning to draw logical conclusions and to make well-reasoned decisions and possess the skills

and knowledge necessary to apply the use of logic, numbers and mathematics to deal effectively with common problems and issues.

- Students will demonstrate the ability to adhere to a self-correcting system of inquiry (the scientific method) and rely on empirical evidence to describe, understand, predict and control natural phenomena.

Liberal Arts: Art History Specialization, A.A

Pathway Dean: Jimmie McClellan, AL

SLO Lead: Sarah Liberatore, AL

- Identify major artists and works of art
- Using their stylistic traits, distinguish among art historical periods
- Develop a formal vocabulary to describe art
- Explain the significance of the media and techniques used to create a work of art.
- Critically evaluate works of art within their historical context
- Apply information literacy skills to research art history

Liberal Arts: Theatre, C.S.C.

Pathway Dean: David Epstein, WO

SLO Lead Faculty: David Tyson, WO

- Students will be able to define theatre vocabulary.
- Students will be able to analyze a script for performance and production.
- Students will be able to present material to an audience.
- Students will be able to illustrate the organization of a theatrical event.
- Students will be able to apply appropriate technical elements of stagecraft such as costume designs, set designs, research, lighting, sound, and make-up to a performance.
- Students will be able to discuss the impact of theatre on a variety of cultures and society.

Marketing, A.A.S.

Pathway Dean: Ivy Beringer, AL

SLO Lead Faculty: Judy McNamee, AN

- Communicate effectively to the public, press, and employees in both oral and written formats with grammatical accuracy.
- Apply basic business math to inventory planning and control, pricing strategies, budget calculations, stock turns, and inventory loss.
- Describe the elements of the marketing mix (product, price, place, and promotion) and their use to achieve customer satisfaction.
- Apply the marketing principles such as marketing strategies, sales promotion, sales management, good customer service, public relations, and ethical procedures in consumer and business transactions.
- Demonstrate how to achieve organizational objectives by effectively interacting with others as team members and as team leaders.

Massage Therapy, C.S.C.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Jennifer Sovine, ME

- Effectively blend Swedish and deep tissue strokes to perform a full body massage.
- Integrate musculoskeletal anatomy and physiology into massage techniques.
- Identify indications and contra-indications to determine techniques appropriate for each client.
- Demonstrate ethical behavior in the client/therapist relationship.
- Incorporate body mobilization and stretching techniques into bodywork.
- Demonstrate the principles of proper body mechanics when performing massage.
- Perform pre-massage consultations with clients using proper notations on session charts and post-massage evaluations.
- Construct a business plan that addresses business structures, management techniques, and ethics.
- Perform cardio/pulmonary resuscitation and basic first aid.

Medical Laboratory Technology, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Maria Torres-Pillot, ME

- Communicate effectively to serve the needs of patients, the public, and the healthcare delivery team.
- Comply with applications of safety and government relations.
- Discuss significance of clinical procedure results and the principles and practices of quality assessment.
- Collect, process, and analyze biological specimens and other substances.
- Perform, discuss and demonstrate principles and methodologies of diagnostic assays, problem solving, and troubleshooting techniques.
- Practice and discuss principles of professional conduct and the significance of continuing professional development.

Music, A.A., A.A.A., and Jazz Specialization

Pathway Dean: David Epstein, WO

SLO Lead Faculty: Lisa Eckstein, AL

- The student will be able to render a performance that is musically expressive and technically accurate.
- The student will be able to analyze the musical structure of a composition.
- The student will be able to perform pieces, exercises, scales, and progressions accurately.
- The student will be able to perform effectively in a group.
- The student will be able to provide an overview of the history of music/history of jazz and popular music.
- The student will be able to effectively research and write on topics in the area of music/jazz and popular music.

Music Recording Technology Certificate

Pathway Dean: David Epstein, WO

SLO Lead Faculty: Sanjay Mishra, LO

- Creatively use technical knowledge of microphones and/or microphone techniques in audio applications.
- Appropriately use an equalizer, compressor, and/or time based effects in audio applications.
- Distinguish five frequency bands in audio aurally.
- Explain current issues in copyright law.
- Record a live band.
- Calculate basic electrical circuit resistance, amperage, and voltage.
- Use techniques to predict room reverberation time (RT_{60}) with regard to proper musical acoustic support for a traditional recording studio space exhibiting frequency-dependent exponential decay.
- Seamlessly edit digital audio files.
- Define terms used in pro audio.

Nursing, A.A.S.

Pathway Dean: Laura Dickson, ME

SLO Lead Faculty: Laura Dickson, ME; Brenda Clark, ME

- Demonstrate quantitative reasoning in the practice of nursing.
- Demonstrate using community-based nursing in the promotion of health, in providing for a safe and effective environment, and promoting/maintaining physiological and psychological integrity.
- Utilize the nursing process, critical thinking strategies, and Maslow's Hierarchy of Needs to provide nursing care along the health/illness continuum throughout the life cycle
- Provide culturally competent therapeutic nursing care to clients with common, well-defined health needs in community-based settings.
- Communicate effectively in diverse settings.
- Utilize the teaching/learning process in providing nursing care.
- Demonstrate the ability to manage client care.
- Demonstrate the use of critical thinking throughout the nursing process in the provision of client care.

Occupational Therapy Assistant, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Megan Cook, ME

- Establish and maintain a therapeutic rapport with clients, families, colleagues, and other health care professionals through effective communication and appropriate professional behaviors during the screening and evaluation process.
- Implement evidence-based practice skills when working with clientele across the lifespans and across cultures.

- Effectively and creatively solve problems and make reflective treatment decisions based on the stated needs of the clients who are being served.
- Provide meaningful and purposeful therapeutic interventions to clients in a safe, ethical, and legal manner under the direction and supervision of an occupational therapist.
- Effectively document using electronic medical records and written documentation in order to best ensure effective communication with colleagues, other healthcare professionals, administration, and reimbursement agencies.
- Utilize principles of occupational and activity analysis and synthesis used in occupational therapy intervention during laboratory activities and fieldwork opportunities.
- Utilize the teaching and learning process in providing occupational therapy interventions.
- Develop lifelong learning capabilities required for enhanced professional development.

Paralegal Studies, A.A.S.

Pathway Dean: Evette Hyder-Davis, MA

SLO Lead Faculty: Joyce McMillan, AL

- Distinguish between the roles of attorney and paralegal.
- Research federal and state laws using manual and computer assisted methods such as Lexis or Westlaw.
- Locate and prepare standard forms appropriate to specific legal problems.
- Draft legal documents, including but not limited to pleadings, contracts, wills, and deeds.
- Distinguish between personal and subject matter jurisdiction for federal and state courts.
- Solve issues using proper legal citation form and writing style.
- Identify and solve legal ethics and professional responsibility issues.
- Demonstrate competency in the use of timekeeping and scheduling software applications.

Personal Training, C.S.C.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Sue Thompson, AN; Rick Steele, AL

- Graduates will explain the principles of fitness and demonstrate proper technique for flexibility, muscular strength, muscular endurance, and cardiovascular exercises.
- Graduates will identify the muscular-skeletal structure as it relates to fitness.
- Graduates will be able to identify the major nutrients and discuss their role in overall wellness.
- Graduates will interpret results of body composition assessments and apply to weight management strategies.
- Students will be able to identify and understand basic treatment and prevention of common fitness related injuries.
- Graduates will analyze case studies to demonstrate their understanding of the physical training concepts and physiological factors of training.

- Graduates will instruct individual and group exercise sessions.
- Graduates will administer physical fitness assessments on muscular strength, muscular endurance, cardiovascular endurance, flexibility, and body composition.
- Graduates will demonstrate correct procedures for cardiopulmonary resuscitation and use of the AED.
- Graduates will be able to identify and describe the academic areas of study in exercise science and professional opportunities in the fitness industry.
- Graduates will be able to describe the historical background of exercise science and the role it plays in current practices.

Phlebotomy, C.S.C.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Maria Torres-Pillot, ME

- Communicate effectively to serve the needs of patients, the public, and the health care delivery team.
- Demonstrate laboratory safety and regulatory compliance.
- Perform venipuncture and dermal puncture collection, handling, and processing.
- Demonstrate ethical and professional conduct.
- Develop problem-solving skills in the pre-analytical phase of specimen collection.
- Relate knowledge of body systems with the most common diagnostic laboratory testing for each system.

Photography and Media, A.A.S.

Pathway Dean: David Epstein, WO

SLO Lead Faculty: Aya Takashima, AL

- Control the image capture process.
- Control the output process.
- Manage image/media assets and workflow.
- Solve technical and aesthetic problems independently and creatively.
- Produce and present a coherent body of work in a chosen genre.
- Discuss work in the medium with correct and appropriate vocabulary.
- Discuss images in terms of the history and theory of the medium.
- Make effective editing and postproduction decisions.

Physical Therapist Assistant, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Jody Gundrum, ME

- Demonstrate competence in implementing interventions identified in the plan of care established by the physical therapist.
- Demonstrate competence in performing data collection skills essential for carrying out the plan of care established by the physical therapist.
- Present sound rationales for clinical problems solving within the plan of care established by the physical therapist.

- Communicate verbally and nonverbally with the patient, the physical therapist, healthcare delivery personnel, and others in an effective, appropriate, and capable manner.
- Exhibit conduct that reflects practice standards that are legal, ethical, and safe.
- Identify career development and lifelong learning opportunities.

Professional Writing for Business, Government and Industry Certificate

Pathway Dean: Jennifer Daniels, AN
 SLO Lead Faculty: Jennifer Nardacci, AN

- Apply all phrases of writing process including prewriting, drafting, and revision, documenting sources, and avoiding plagiarism.
- Write a precise, clear, and properly formatted technical report.
- Compose written business document in contemporary business format and style.
- Plan, write, and finalize effective business letter with attachments.
- Write and research articles following conventions and ethics of journalistic writing.
- Compose and edit hypertext documents with consistent tone, ethics, and style for the World Wide Web.
- Employ correct fundamentals of English grammar, including punctuation, and basic logic of written communication.
- Produce edited document with application of copy and comprehensive editing.
- Design, write, and test a User Manual.
- Apply knowledge gained in entire program in Capstone Writing Internship.

Public History and Historic Preservation, C.S.C.

Pathway Dean: Kathleen Hitchcock, LO
 SLO Lead Faculty: Marc Dluger, LO

- Students will analyze and assess museum exhibits and objects.
- Students will explain the role and function of preservation in society.
- Students will explain the historical development of preservation law and its applications in local, state, and national government.
- Students will synthesize knowledge of historical preservation / public history with practical experience in the field.

Radiography, A.A.S.

Pathway Dean: Shelly Powers, ME
 SLO Lead Faculty: Jarice Risper, ME

- Apply knowledge of radiation protections to minimize patient dose.
- Communicate effectively to serve needs of community and other health care providers.
- Provide patient care essentials to radiologic sciences.
- Apply knowledge of anatomy, positioning, and radiographic techniques to accurately image anatomical structures.
- Evaluate images for diagnostic information.

- Determine proper exposure factors to achieve optimum images of anatomical structures.
- Work in an ethical, legal, safe and effective manner in diagnostic imaging.
- Develop lifelong learning habits that reflect professional development.

Respiratory Therapy, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Donna Oliver-Freeman, ME

- Perform psychomotor and cognitive skills in all areas of non-critical care.
- Perform the psychomotor and demonstrate the cognitive skills in all areas of adult critical care.
- Perform the psychomotor and demonstrate the cognitive skills in all areas of neonatal/pediatric critical care.
- Perform the psychomotor and demonstrate the cognitive skills in the areas of respiratory therapy home care, patient education/disease management, pulmonary rehabilitation and cardiac diagnostics.
- Apply the knowledge of respiratory therapy information into patient care case studies and scenarios.
- Demonstrate ethical and professional conduct in the classroom, laboratory, and clinical settings.
- Communicate effectively with respiratory care and other healthcare professionals.

Science, A.S.

Pathway Dean: Barbara Canfield, LO

SLO Lead Faculty: Mitra Jahangeri, LO

- Students will be able to use quantitative reasoning coupled with scientific knowledge to draw logical conclusions and make well-reasoned decisions.
- Students will apply the scientific method and identify methods of inquiry that lead to scientific knowledge.
- Students will use graphical methods to organize and interpret data.
- Students will explain the atomic structure of basic chemical elements.
- Students will be able to explain the principles of chemical bonding in the formation and properties of molecules.
- Students will be able to utilize mathematical calculation skills to resolve STEM-related problems.
- Students will be able to use standard laboratory techniques to describe and quantify compounds or objects.

Social Sciences, A.S.

Pathway Dean: Jennifer Daniels, AN

SLO Lead Faculty:

- Students will demonstrate the ability to interact with others, resulting in understanding and being understood.

- Students will demonstrate the ability to evaluate evidence carefully and apply reasoning to decide what to believe and how to act.
- Students will demonstrate an awareness, understanding, and appreciation of the interconnectedness of the social and cultural dimensions within and across local, regional, state, national and global communities.
- Students will demonstrate the ability to recognize when information is needed and will have the ability to locate, evaluate, and use it effectively.
- Students will demonstrate the ability to develop and/or refine personal wellness goals.
- Students will demonstrate the ability to use numerical, geometric, and measurement data and concepts, mathematical skills, and principles of mathematical reasoning to draw logical conclusions and to make well-reasoned decisions and possess the skills and knowledge necessary to apply the use of logic, numbers, and mathematics to deal effectively with common problems and issues.
- Students will demonstrate the ability to adhere to a self-correcting system of inquiry (the scientific method) and rely on empirical evidence to describe, understand, predict, and control natural phenomena.

Social Sciences: Geospatial Specialization, A.S.

Pathway Dean: Kathleen Hitchcock, LO
 SLO Lead Faculty: Michael Harman, LO

- Students will define and employ geospatial vocabulary.
- Students will plan and perform spatial analysis.
- Students will prepare and present geo-spatial material to an end-user.
- Students will manage diverse spatial data.
- Students will plan, develop and maintain a GIS.

Social Sciences: Teacher Education Specialization, A.S.

Pathway Dean: Evette Hyder-Davis, MA
 SLO Lead Faculty: Ashley Wilkins, MA

- Students will identify and describe the licensure/certification requirements for teacher education (pre K-12).
- Students will summarize, reflect upon, and outline their field experiences in the public school systems during their 40 field placement hours.
- Students will analyze the educational court cases which have helped define and regulate the educational system in the U.S.
- Students will critically evaluate information that describes the inter-relationship of teaching, learning, students, and/or society.
- Students will illustrate and explain assessment techniques in the public school systems.
- Students will prepare and compose topics related to practice in a variety of communities, identifying students of differing ages and with culturally diverse and exceptional populations.

Substance Abuse Rehabilitation Counselor Certificate

Pathway Dean: Evette Hyder-Davis, MA

SLO Lead Faculty: Chandell Miller, AL

- Conduct a client screening assessment including a medical, legal, and family history.
- Prepare information for use with a client that includes facts about the disease, potential for relapse, and codependency.
- Design a comprehensive substance abuse treatment program appropriate for use with a client that meets state standards.
- Identify and explain the developmental stages of group.
- Attend several support group meetings, summarize the group experience, and present findings.
- Conduct a site visit of an addiction treatment facility and make a presentation on the findings including levels of care, theoretical basis, modalities of treatment, and the requirements of staff.
- Summarize journal articles related to various theoretical orientations and participate in small groups comparing the application of the approaches.

Veterinary Technology, A.A.S.

Pathway Dean: Shelly Powers, ME

SLO Lead Faculty: Kiana Adkisson-Selby, LO

- Safely and accurately prepare, dispense, administer, and explain the use of prescribed medications.
- Perform surgical assistance.
- Perform and assist with dental procedures including dental equipment preparation and maintenance.
- Properly collect, accurately prepare, and analyze laboratory specimens.
- Explain animal patient assessment, nursing procedures, and the implantation of prescribed diagnostics and treatments, including basic animal care or husbandry (excluding emergency and critical care).
- Produce diagnostic images (excluding dental) following protocols for quality and demonstrate knowledge of proper operator and animal patient safety.
- Safely and effectively administer and monitor animal patient anesthesia.
- Assess need for analgesia and assist in the development and implementation of the pain management plan to optimize animal patient comfort and/or healing.
- Explain how to perform and expedite triage, emergency, and critical care nursing procedures in the implementation of prescribed treatments.
- Communicate effectively in an ethical, legal, and professional manner with veterinary clients and the veterinary health care team.

Visual Art, A.F.A.

Pathway Dean: Davis Epstein, WO

SLO Lead Faculty: Fred Markham, WO

- Apply technical skills of craftsmanship to craft a two or three-dimensional artwork.
- Evaluate a work of art using critical thinking and an accurate vocabulary.

- Create an artwork from direct observation.
- Recognize the role of social, community, and global connections to understand historical and/or contemporary art.
- Use the elements and principles of design to create an artwork.
- Create a portfolio of work.

Welding: Basic Techniques, C.S.C.

Pathway Dean: Abe Eftekhari, AN

SLO Lead Faculty: Matthew Wayman, MA

- Perform technical work related to welding applying OSHA safety and industry standards in a work environment.
- Apply basic machine and technique adjustments to solve typical welding problems.
- Select appropriate filler material for compatible admixing and dilution in the writing of welding procedure for various ferrous and non-ferrous metals.
- Interpret basic welding fabrication drawings, sketches, symbols, and/or welding specifications.

PATHWAY TO THE AMERICAN DREAM—NOVA'S STRATEGIC PLAN 2017-2023

THE NOVA COMMITMENT

As its primary contributions to meeting the needs of the Commonwealth of Virginia, the Northern Virginia Community College pledges to advance the social and economic mobility of its students while producing an educated citizenry for the 21st Century.

THE STRATEGIC PLAN GOALS AND OBJECTIVES

To deliver on this commitment NOVA will focus its creativity and talent, its effort and energy, and its resources and persistence, on achieving three overarching goals—success, achievement, and prosperity. It will strive to enable **Every Student to Succeed, Every Program to Achieve, and Every Community to Prosper.**

To advance the completion agenda described above, thereby promoting students' success and enhancing their social mobility, ensuring that programs achieve, and producing an educated citizenry for the 21st Century, the following goals and objectives are adopted:

GOAL 1: Every Student Succeeds

- **Objective 1:** Develop a College-wide approach to advising that ensures all students are advised and have access to support throughout their time at NOVA
- **Objective 2:** Implement VIP-PASS System as the foundational technology based on NOVA Informed Pathways for student self-advising, assignment and coordination of advisors, and course registration

GOAL 2: Every Program Achieves

- **Objective 3:** Develop comprehensive, fully integrated Informed Pathways for every program to ensure seamless transitions from high school and other entry points to NOVA, and from NOVA to four-year transfer institutions or the workforce
- **Objective 4:** Develop effective processes and protocols for programmatic College-wide collective decisions that include consistent, accountable leadership and oversight of each academic program with designated "owners," active advisory committees, clear student learning outcomes and assessments, and program reviews in all modalities of instruction
- **Objective 5:** Align NOVA's organizational structures, position descriptions, and expectations for accountability with its overarching mission to support student engagement, learning, success and institutional effectiveness

GOAL 3: Every Community Prospers

- **Objective 6:** Enhance the prosperity of every community in Northern Virginia by refocusing and prioritizing NOVA's workforce development efforts
- **Objective 7:** Further develop NOVA's IT and Cybersecurity programs to support regional job demand and position NOVA as the leading IT community college in the nation
- **Objective 8:** Re-envision workforce strategies and integrate workforce development into a NOVA core focus
- **Objective 9:** Plan to expand the breadth and reach of NOVA's healthcare and biotechnology programs, and prioritize future programs to support regional economic development goals economic development goals

NOVA

**Northern Virginia
Community College**

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