# Guide for Evaluating the Academic Program’s Review’s

# Curriculum & Assessment Section

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| Degree Program Expectations for Curriculum & Assessment |

The following section needs to be completed for EACH degree program offered by the Academic Unit.

# I. Degree Program Purpose Statement

The purpose statement identifies the overall goals or aims of the degree program, as collectively understood by the faculty members teaching in the degree program. The degree program purpose statement summarizes the following in a manner that differentiates it from other academic programs offered at NAU:

* The scope of the program,
* The content studied, skills developed and so on,
* The learning experiences provided, and
* The future opportunities for which it prepares students.

Graduate degree programs also address the population that is best suited for the graduate program.

***Rationale***

Understanding and articulating a program’s overall goals or aims accomplishes a number of things. Most importantly, it clarifies for students who may know little about the discipline or program the boundaries of the discipline, as studied by the academic unit, summarizes what and how students will learn within the degree, and expresses the future opportunities students will be prepared to achieve. It requires the program’s faculty to come to agreement upon the purpose of learning, the boundaries of learning, and the future opportunities students will be prepared to engage in upon completion of the program.

The clear identification of the overall goals and aims of the program assists faculty in determining the program and course level learning outcomes that will lead to the achievement of the program’s purpose. Finally, the purpose is meant to guide and focus faculty instructional decisions as they design the curriculum to achieve the program’s larger aims and goals.

***Overall Excellent Examples***

BS in Sociology

The Bachelor of Science in Sociology program provides students with the knowledge, skills, and abilities to enter the world of social and government services, business, industry, and organizations. The sociological perspective is essential for succeeding in today’s multiethnic and multinational work force. Our sociology major stresses an awareness of social factors such as race, ethnicity, gender, age, education, and social class that both influence and are affected by social structures. This perspective is an excellent preparation for a wide variety of occupations.

This degree builds a strong foundational knowledge in the study of social life, social change, diverse communities and their interactions. Our curriculum is designed to ensure that students have a strong substantive understanding in one of our concentration areas: social justice and inequality; culture and community; environment, globalization, and sustainability; or, health. Our curriculum further ensures that students can use scientific methods to find empirical answers to complex social questions. In addition, they will be able to make clear and effective demonstrations of their work orally and in writing. Students will leave this program with an ability to make sense of the shifting social world and contribute solutions to difficult social problems.

The faculty of this department are innovative teachers and researchers who engage students in and out of the classroom. Our students are encouraged to participate in independent research projects with faculty, study abroad programs, internships, and student clubs and learning communities.

Sociology graduates are critically informed, value diversity and equality, and use their knowledge of sociology to pursue careers that promote these ideals.

PHD in Mechanical Engineering

The PhD in Mechanical Engineering trains students to carry out research, to apply high-level content and research methods and tools to find solutions to complex mechanical and interdisciplinary engineering problems. The program will train students to tackle problems in advanced fluid mechanics, continuum mechanics, adaptive structures and intelligent systems, nano-heat transfer and energy systems, as well as in other emerging areas in which our faculty will continue to develop expertise. The program focuses on training students on the application of analytical, computational and experimental tools to solve engineering problems, in one or more of the areas listed above. The scope of the program is to provide students with technical agility in the research areas indicated above, as well as the ability to cross disciplinary boundaries, allowing them to solve increasingly interdisciplinary and complex engineering problems.

Students will also be trained to critically evaluate problems and identify the best tools, methods, approaches to be deployed for identifying optimal solutions for them. Training will occur through a combination of traditional lectures, research, and personalized mentoring by faculty advisors.

Opportunities for employment of Mechanical Engineering PhD’s are common in a broad range of industries, including but not limited to aerospace, automotive, manufacturing, biomedical, etc., as well as in national laboratories and academia. ME PhD’s can take on positions in training, marketing, sales, software development, and technical support.

This program is designed for students with strong preparation in the engineering sciences, including a Bachelor’s degree in Mechanical Engineering or in a related field, and research interests aligned with faculty in the program. Moreover, we aim to reach out to diverse students and we want to become the flagship program for recruiting and graduating native students from the broader South West region.

## I.A. The degree program’s purpose statement adequately summarizes the scope of the program.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

“Scope” indicates the breadth of the field covered by the academic program. It identifies the aspects of the discipline, field, or area of knowledge addressed by the academic program. The primary goal of the “scope” is to define the boundaries of the program. Some of our programs are similar, and the scope differentiates a program’s boundaries so that students can review two degrees and make an informed choice about which degree to pursue.

***How-to Guide***

Review the purpose statement and identify within it the statement(s) that appear to address the program’s scope. Use the examples below to assist you. Compare your response with those in your review group. Together, come to an agreement of whether the purpose contains a statement addressing the “scope,” and whether that statement is sufficient or needs improvement. Note that for programs having great breadth the scope and content, skills and knowledge may overlap (see example below).

***Examples***

An excellent example is provided by the Forensics Minor (below). What makes this particular purpose statement excellent is that it:

* Opens by clarifying what students study in the field of “Forensic Science.”
* The second sentence clarifies the area of Forensic Science addressed within the “Social Sciences Forensic Minor” program, clearly describing the sub-set of knowledge covered by the minor.
* The third sentence expounds upon the issues specifically addressed by the minor.

*(1) “Forensic science” is the application of a wide spectrum of sciences and techniques that aid in detecting and solving crime, identifying individuals (victims and offenders) involved in crime, reconstructing events before, during and after the crime, and service to the courts and legal system. (2) In the Social Sciences Forensic Minor, students develop an understanding of the social, cultural, historical and political differences in the United States and globally, impacting forensic science development and its application in theory and method in criminology, criminal justice and law enforcement systems. (3) These include issues of gender, ethnicity, social inequality, and changing cultural dynamics and values affixed to human life, civil rights and criminal justice.*

The Chemistry M.S. degree’s scope clearly identifies that the student will focus their time energy on the development of experimental approaches in a specific field:

*The Chemistry M.S. program prepares students for research-focused professions in the chemical sciences, emphasizing the development of a students' ability to develop experimental approaches that accurately capture information to solve questions and problems in their chemical field of study.*

For academic programs having a great deal of breadth in their program, the “scope” can be addressed by the “content studied, skills developed, and learning experiences” of the degree. Here is an example from the English B.A. (The bolded section is what we would identify as addressing both the “scope” and the “content studied, skills developed, and/or the learning experience(s) provided.”)

*The Bachelor of Arts in English prepares graduates for any future that demands proficiency in literature, language, and writing, as well as general excellence in resourceful, well-informed communication.* ***Our graduates recognize the close weave of logical thought and effective expression, strive for more persuasive or more creative uses of English, possess the sense and insight to appreciate the value and quality of literature, have developed their historical and cultural imaginations by studying the marks of other times and diverse peoples in language and text, and recognize the global contexts of English as well as the social, civic, and environmental responsibilities that come with a liberal education.*** *Our graduates have attained the high-level literacy skills and have practiced the research methods needed to compete in graduate and professional schools and to succeed in the workplace. With our help, they have prepared themselves to become productive, responsible members of the communities in which they live and work.*

## I.B. The degree program’s purpose statement adequately summarizes the content studied, the skills developed, and/or the learning experience(s) provided.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

The phrase “the content studied, skills developed, and/or learning experience(s) provided” ensures the purpose statement includes a summary of the essential learning outcomes and associated learning experiences that comprise the program.

***How-to Guide***

Review the purpose statement and identify within it the statement(s) that appears to address the program’s content, skills, and learning experiences. Use the examples below to assist you. Compare your response with those in your review group. Together, come to an agreement of whether the purpose contains a statement addressing the “content, skills, and learning experiences,” and whether that statement is sufficient or needs improvement.

***Examples***

The following unit successfully separated their program’s scope from their discussion of content, skills, and learning experiences:

(Scope) *The Department of Psychological Sciences enables students to develop understanding and knowledge about human behavior from several perspectives in psychological science, the ability to apply and synthesize that knowledge within specific psychological domains (research and statistics, developmental processes, social and personality, cognitive and behavioral neuroscience, learning theory and behavioral health), and research method skills in order to become critical evaluators and producers of knowledge of human behavior.*

(Content, Skills, Learning Experiences) *The department’s learning goals for the undergraduate major in Psychology reflect the American Psychological Association’s Learning Goals (2013) and NAU’s Thematic Global Learning Outcomes. To accomplish these goals, the course of study in psychology focuses on understanding the methods, ethics, and sociocultural context of research in psychological science through coursework, associated laboratory experience, and opportunities for application. Students develop the ability to critically evaluate existing psychological knowledge, assumptions, and application in order to demonstrate literacy, proficiency, and efficacy in informational, technological, and communication (written and oral presentation) skills. The ability to engage in critical analyses of psychological ideas and scientific evidence constitutes a valuable personal asset, and is a key to success in many professions, including academic and clinical psychology, business, education, law, medicine, behavioral health, and human services. Further, our Department strives to tie our departmental goals explicitly to learning outcomes in such a way that students are aware of the skills they have developed and how these skills are relevant to their professional success. To accomplish these goals, the Department engages in timely and relevant assessment of student learning outcomes at all levels of the curriculum and uses those data for program refinement.*

## I.C. The degree program’s purpose statement adequately summarizes future opportunities for which it prepares students.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

In order to incorporate concepts of “Backward Design” (designing a program’s curriculum by first setting the goals of the program, then working backward to develop approaches to instruction and course progression that will achieve those goals), we encourage faculty to identify the future opportunities students will succeed in upon completion of the program. In addition, students, parents and other external audiences are curious about how specific fields and areas assist them toward their future goals.

***How-to Guide***

Review the purpose statement and identify within it the statement(s) that appears to address future opportunities. Use the examples below to assist you. Compare your response with those in your review group. Together, come to an agreement of whether the purpose contains a statement addressing the “future opportunities,” and whether that statement is sufficient or needs improvement.

***Examples***

Descriptions taken from purpose statements that exemplify this characteristic are as follows:

Human Resources Management Certificate

*“At the completion of the certificate, students will be able to demonstrate accurate knowledge of human resources practices, scientific findings from industrial-organizational psychology, the ability to work as part of a successful team, and should be well prepared to either pass the exam to receive the APHR certificate and create an entryway into a successful career in human resources or to be successful in graduate studies in industrial/organizational psychology.”*

English B.A.

*“Our graduates have attained the high-level literacy skills and have practiced the research methods needed to compete in graduate and professional schools and to succeed in the workplace. With our help, they have prepared themselves to become productive, responsible members of the communities in which they live and work.”*

Electrical Engineering: B.S.E.

*…Our rigorous curriculum will help you pursue a career designing and developing the latest smart phone, renewable energy system, and all the electronic chips, equipment and products in between that benefit people by connecting, healing, informing, entertaining, defending, and providing the essentials for life.*

Sociology B.S.

*The Bachelor of Science in Sociology program provides students with the knowledge, skills, and abilities to enter the world of social and government services, business, industry, and organizations. The sociological perspective is essential for succeeding in today’s multiethnic and multinational work force. Our sociology major stresses an awareness of social factors such as race, ethnicity, gender, age, education, and social class that both influence and are affected by social structures. This perspective is an excellent preparation for a wide variety of occupations… Students will leave this program with an ability to make sense of the shifting social world and contribute solutions to difficult social problems... Sociology graduates are critically informed, value diversity and equality, and use their knowledge of sociology to pursue careers that promote these ideals.*

Health Sciences Allied Health B.S.:

*These programs are specifically designed for students who have completed their associate’s degree in an allied health discipline from a regionally-accredited program and who have successfully obtained the related professional license… We specialize in preparing students in enhancing their careers with an understanding of the importance of leadership and inter-professional teamwork among health professionals, as well as skills to sustain personal health and well-being.*

Communication M.A.

*The MA in Communication (with no emphasis) will be of relevance to working professionals in a variety of fields, educators, activists, and those preparing to pursue a PhD in Communication, Communication Studies, Rhetoric, or related disciplines.*

# II. Degree Program Student Learning Outcomes

Degree program student learning outcomes define the scope (breadth and depth) of what students will know, be able to do, etc., upon completion of the degree program. Degree program student learning outcomes:

* Are explicit;
* Are learning-centered (focus on what students learn rather than on what faculty teach);
* Align with the degree program purpose;
* Are appropriate to the level of the degree offered (Master’s degree outcomes would be more rigorous and comprehensive than Bachelor’s degree outcomes, etc.); and
* If a degree program has emphases, the outcomes capture the learning associated with both the common and unique curricular requirements of the degree.

***Rationale***

The primary purpose of Degree Program Student Learning Outcomes is to make teaching and learning purposeful. Learning outcomes provide a framework and a common language that both faculty and students can consistently apply to identify how a course (or even an assignment or learning experience) contributes to the purpose of the degree program.

Effective outcomes facilitate student learning because they build the foundation for the degree program’s curriculum. When used in curriculum design, degree program student learning outcomes:

* Establish the learning priorities of the degree program;
* Communicate a unified vision of what faculty intend students will be able to achieve upon completion of the degree program;
* Tie together learning opportunities within and across courses; and
* Communicate how experiences contribute to and build learning throughout the students’ degree program.

In Backward Design, learning outcomes create a foundation for designing a program, as they identify faculty members’ learning “goals” or “objectives,” which we identify at NAU as “learning outcomes.” By identifying learning outcomes, faculty can then work backwards to develop approaches to instruction and course progression that will achieve their stated learning outcomes for the degree program.

## II.A. The degree program’s student learning outcomes are explicit.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

The primary purpose that NAU expects outcomes to be “explicit” is to ensure outcomes provide enough clarity to support faculty in: (a) the design of the degree program and (b) the design of meaningful assessment measures. Effective outcomes facilitate student learning because they build the foundation for the degree program’s curriculum. When used in curriculum design, degree program student learning outcomes:

* Establish the learning priorities of the degree program;
* Communicate a unified vision of what faculty intend students will be able to achieve upon completion of the degree program;
* Tie together learning opportunities within and across courses; and
* Communicate how experiences contribute to and build learning throughout the students’ degree program.

***How-to Guide***

Using the examples below, review the learning outcomes and identify whether most, if not all outcomes are explicit. Compare your response with those in your review group. Together, come to an agreement of whether the outcomes are “explicit” or need improvement.

***Examples***

Two common approaches to ensure outcomes are explicit include the following:

1. Integrating content, skills and purpose of the discipline into a single outcome
2. Developing a broad outcome that is made explicit through clarifying “sub-outcomes”

The first approach is to integrate content, skills, and purpose of the discipline into a single outcome. In other words, the content or knowledge of the program is combined with skills or methods of applying that knowledge. The knowledge and skills are then applied or used for a particular purpose most commonly related to the discipline of the degree program.

Outcomes that are understandable to faculty and students—and other program stakeholders--contain three components:

* Content (what is learned)
* Skills (engagement in some type of action that uses the content that is learned), and
* Purpose (describes how the content and skills are used in the discipline to achieve the broader goals of the discipline).

These elements provide students with a context for their learning. In other words, they not only identify content or knowledge that they will learn, but also how they will use that content and for what purpose they are learning the content. At the same time, these elements provide faculty with guidance as far as designing the program’s curriculum. The articulation of program student learning outcomes benefits both students and faculty by making the curriculum more transparent and making expectations across programs and courses more consistent.

In the table below, you will find examples that demonstrate the differences among learner-centered degree program student learning outcomes, outcomes missing one or more of the important contextual elements, and outcomes providing no context.

|  |  |  |
| --- | --- | --- |
| ExemplaryMAYBE THESE ARE EXEMPLARY AND THE OUTCOMES LIKE BIOLOGY’S ARE SATISFACTORY, BUT NOT EXEMPLARY? | Needs Improvement | Needs Improvement |
| Evaluate the effectiveness of global logistics networks, including the environmental impact of logistics activities, to develop reasoned proposals for improvement that support the strategy of the firm as well as the supply chain as a whole | Use statistical data to make effective decisions in business*What types of statistics, for what types of decisions, for what types of business goals?* | Demonstrate quantitative reasoning*Which degree program does this apply to, how does this apply to the context of the learner, and how is the learner going to use this vague ability in the real world?* |
| Express personal experiences on concrete topics related to work, home, school, and leisure activities using all major time frames (past, present, and future) and the sentence structure and vocabulary of the culture, in order to interact with native speakers unaccustomed to dealing with non- natives, and handle complicated or unexpected communicative tasks | Master and employ art historical vocabulary*In what types of writing and using what types of analysis? What’s the broader purpose of mastering this vocabulary… as an Art Historian and in other professions?* | Possesses written communication skillsWhich degree program does this apply to, how does this apply to the context of the learner, and how is the learner going to use this vague ability in the real world? |

A second approach is to state a broad learning outcome and provide supporting descriptions of the outcome. Here are some examples of a few outcomes pulled from lists from various academic programs:

Sociology BS

*Critical use of scientific methods to develop empirical explanations of social phenomena by:*

* *Assessing perspectives and approaches best able to research a particular phenomenon;*
* *Developing research designs to discover, describe and/or analyze specific social components;*
* *Applying and utilizing qualitative and quantitative techniques as part of the research design;*
* *Demonstrating effective use of technology to retrieve data and information from databases in order to assess relevant research found in research publications and other sources; and*
* *Analyzing and evaluating data to inform the explanation of the phenomenon being studied.*

Chemistry MS

*Apply appropriate research methods and analysis as evidenced by skills such as:*

* *Planning and carrying out a research project independently;*
* *Demonstrating the ability to be self-critical in evaluating procedures and outcomes;*
* *Taking responsibility for the success of a research project;*
* *Participating and collaborating with members of their research group and with people outside of their group; and/or*
* *Understanding the limitations of the research methods used in their work.*

## II.B. The degree program’s student learning outcomes are learning-centered.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

A learner-centered outcome shifts the focus of the outcome from what the faculty members are teaching to what a student is meant to learn. Since student learning in the academic program is the purpose of curriculum design and assessment at NAU, outcomes are phrased to focus upon what faculty want students learn in the program.

***How-to Guide***

Using the examples below, review the learning outcomes and identify whether all outcomes are learner/learning-centered. Compare your response with those in your review group. Together, come to an agreement of whether the outcomes are “learner/learning-centered” or need improvement.

***Examples***

The following example demonstrates how to move the perspective from a teacher-centered approach, and instead, to identify what students will get out of the experience. Writing the outcome from the students' perspective provides a foundation of meaning to which learners can "fasten" the concepts and skills of your discipline.

|  |  |
| --- | --- |
| Example of “Exemplary” | Example of “Needs Improvement” |
| The role of evidence and qualitative and quantitative methods in sociology, such that the student will be able to:* identify basic methodological approaches and describe the general role of methods in building sociological knowledge;
* compare and contrast the basic methodological approaches for gathering data;
* design a research study in an area of choice and explain why various decisions were made; and
* critically assess a published research report and explain how the study could have been improved.
 | Opportunities to become familiar with research theories and methodologies.*This approach is entirely teacher-centered, describing what the teacher will cover, not what the student will learn through this experience.* |

Below is an example identifying the difference between a program goal and a degree program student learning outcome.

|  |  |
| --- | --- |
| Example of “Exemplary” | Example of “Needs Improvement” |
| Knowledge of the technical aspects of construction and building systems, and energy conservation, as well as working knowledge of legal codes and regulations related to construction, environmental systems, and human health and safety, and the ability to apply such knowledge appropriately in specific projects.*This is the learning outcome that, if achieved, will ensure students “integrate quickly into the workplace.”* | Graduates will integrate quickly into the workplace or advanced education due to an emphasis on high quality teaching, advising, and mentoring.*This statement belongs in Purpose Statement of the program because it identifies what is important to faculty in delivering the degree program. It does not describe what students will learn to accomplish this ability.* |

## II.C. The academic program’s student learning outcomes are aligned with the degree program purpose.

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

High quality degree program student learning outcomes align with the degree program mission and purpose. The mission and purpose of the degree program defines the future activities for which the degree program is preparing students. Some programs may have multiple potential directions for their students, such as careers, graduate school, or general skills and knowledge that can be applied to a variety of futures. The degree program student learning outcomes should be a natural deeper description of the knowledge and skills (attitudes, ways of knowing, etc.) students will achieve, and through the achievement of those outcomes, they will be successful in the future potential pathways identified by the degree program.

***How-to Guide***

Using the examples below, review the learning outcomes and identify whether most, if not all outcomes are aligned with the degree program purpose. Compare your response with those in your review group. Together, come to an agreement of whether the outcomes are “aligned with the degree program purpose” or need improvement.

***Examples***

For example, the purpose of the Secondary Education programs is to provide students all of the skills and knowledge they need to become teachers in their specific content area. Learning outcomes in Secondary Education programs encompass all of the skills and knowledge to develop curriculum, assess students' learning, and modify curriculum based on what students have learned. In addition, they include all of the knowledge of the content discipline of the degree program (e.g., English, Biology, Mathematics, etc.).

Another example is Geology. Their mission is to prepare students for three potential areas: further study in Geology, a career in Geology, or going directly into a career that may or may not be related to Geology once they complete their degree. Degrees with broader goals tend to focus more on the elements of critical thinking and how learning how to think critically in the discipline will provide success in a variety of areas. Critical thinking goals show up in the Degree Program Student Learning Outcomes through clearer definitions of the types of analysis and synthesis students learn to engage in.

English B.A.

|  |  |
| --- | --- |
| Purpose | Associated Learning Outcome(s) |
| Our graduates have developed their historical and cultural imaginations by studying the marks of other times and diverse peoples in language and text | General Knowledge of English:* Graduates will know how social, cultural, and historical contexts affect personal expression; the reception, comprehension, or study of texts; and specific communication purposes for both writers and readers. Graduates will be conversant with English in global settings and with the increasing impact of international forces—the history and politics of cultural and linguistic diversity, of environmental sustainability, and of globalization—on the discipline of English.
 |

Chemistry M.S.

|  |  |
| --- | --- |
| Purpose | Associated Learning Outcomes |
| The Chemistry M.S. program prepares students for research-focused professions in the chemical sciences, emphasizing the development of a students' ability to develop experimental approaches that accurately capture information to solve questions and problems in their chemical field of study. | Apply appropriate research methods and analysis as evidenced by skills such as:* Planning and carrying out a research project independently;
* Demonstrating the ability to be self-critical in evaluating procedures and outcomes;
* Taking responsibility for the success of a research project;
* Participating and collaborating with members of their research group and with people outside of their group; and/or
* Understanding the limitations of the research methods used in their work.
 |

## II.D. The academic program’s student learning outcomes are appropriate to the level of the degree offered (e.g., Master’s degree outcomes are more rigorous than Bachelor’s degree outcomes).

Please rate each characteristic on your review form using the following scale:

E = Exemplary; S = Satisfactory; N=Needs Improvement; U=Unclear

***Rationale***

Being appropriate to the level of the degree is a characteristic required in the Higher Learning Commission’s (NAU’s regional accreditor) core criterion 3.A.1.: Courses and programs are current and require levels of performance by students appropriate to the degree or certificate awarded.

***How-to Guide***

Using the examples below, review the learning outcomes and identify whether most, if not all outcomes are appropriate to the level of the degree/program. Compare your response with those in your review group. Together, come to an agreement of whether the outcomes are “appropriate to the level of the degree/program” or need improvement.

***Examples:*** One useful approach is to see how Bloom’s Taxonomy, which uses action verbs to connect to learning approaches. The diagram on the following page also connects learning verbs to potential assignments that demonstrate student learning.



The upper half of the circle focuses on skills that potentially include less complex and critical thinking. The lower half of the circles focuses on skills that potentially include more complex and critical thinking. Of course, it all depends on what the student is doing and how they are doing it, so context is the most important factor in identifying the “complexity” of the student’s learning.

Another approach to define “levels of performance appropriate to the degree” can be found in the Lumina Foundation’s Degree Qualifications Profile (DQP), which explicitly articulates differentiated learning outcomes for Associate’s, Bachelor’s, and Master’s degrees. A few sections that seemed to be most relevant to the work of the committees is copied and pasted from the Degree Qualifications Profile below. The PDF of the Degree Qualifications Profile is here <https://www.luminafoundation.org/files/resources/dqp.pdf> .

What the following examples explore is the different level of learning between a Bachelor’s and Master’s Degree. Of course, the specific content knowledge of the discipline would need to be included in the outcomes, as well as the specific purpose of learning developed by faculty in the degree program.

|  | **Bachelor’s Degree** | **Master’s Degree** |
| --- | --- | --- |
| Specialized Learning | • Defines and explains the structure, styles and practices of the field of study using its tools, technologies, methods and specialized terms.• Addresses a familiar but complex problem in the field of study by assembling, arranging and reformulating ideas, concepts, designs and techniques.• Frames, clarifies and evaluates a complex challenge in the field of study and one other field, using theories, tools, methods and scholarship from those fields to produce independently or collaboratively an investigative, creative or practical work illuminating that challenge.• Constructs a summative project, paper, performance or application that draws on current research, scholarship and techniques in the field of study. | • Elucidates the major theories, research methods and approaches to inquiry and schools of practice in the field of study, articulates their sources, and illustrates both their applications and their relationships to allied fields of study.• Assesses the contributions of major figures and organizations in the field of study, describes its major methodologies and practices, and illustrates them through projects, papers, exhibits or performances.• Articulates significant challenges involved in practicing the field of study, elucidates its leading edges, and explores the current limits of theory, knowledge and practice through a project that lies outside conventional boundaries. |
| Analytical Inquiry | • Differentiates and evaluates theories and approaches to selected complex problems within the chosen field of study and at least one other field. | • Disaggregates, reformulates and adapts principal ideas, techniques or methods at the forefront of the field of study in carrying out an essay or project. |
| Communi-cation Fluency | • Constructs sustained, coherent arguments, narratives or explications of issues, problems or technical issues and processes, in writing and at least one other medium, to general and specific audiences.• Conducts an inquiry relying on non-English-language sources concerning information, conditions, technologies or practices in the field of study.• Negotiates with one or more collaborators to advance an oral argument or articulate an approach to resolving a social, personal or ethical dilemma. | • Creates sustained, coherent arguments or explanations summarizing his or her work or that of collaborators in two or more media or languages for both general and specialized audiences. |
| Applied Learning | • Prepares and presents a project, paper, exhibit, performance or other appropriate demonstration linking knowledge or skills acquired in work, community or research activities with knowledge acquired in one or more fields of study, explains how those elements are structured, and employs appropriate citations to demonstrate the relationship of the product to literature in the field.• Negotiates a strategy for group research or performance, documents the strategy so that others may understand it, implements the strategy, and communicates the results.• Writes a design, review or illustrative application for an analysis or case study in a scientific, technical, economic, business, health, education or communications context.• Completes a substantial project that evaluates a significant question in the student’s field of study, including an analytic narrative of the effects of learning outside the classroom on the research or practical skills employed in executing the project. | • Creates a project, paper, exhibit, performance or other appropriate demonstration reflecting the integration of knowledge acquired in practicum, work, community or research activities with knowledge and skills gleaned from at least two fields of study in different segments of the curriculum and articulates the ways the two sources of knowledge influenced the result.• Designs and implements a project or performance in an out-of-class setting that requires the application of advanced knowledge gained in the field of study to a practical challenge, articulates in writing or another medium the insights gained from this experience, and assesses (with appropriate citations) approaches, scholarly debates or standards for professional performance applicable to the challenge. |

**II.B.4.a. The Curriculum Map/ Matrix**

*The Curriculum Map that you provide will be placed in the Degree Program Expectations Section of the Academic Catalog.*

**Rationale**

The purpose of a curriculum map/matrix is to identify the program learning outcomes occurring across the courses and experiences of your program’s curriculum. The key to a good curriculum matrix or “map” is that it is useful for making decisions about the design of your program’s curriculum. “Design” refers to course sequencing, assignment sequencing, and skill and concept development that occurs across the program. The goal of good design is to develop the program’s curriculum in a way that creates the greatest likelihood for students to achieve the program’s learning outcomes.

The second purpose of developing a curriculum map is for the purposes of assessment. A curriculum map allows faculty to apply the findings that have resulted from assessment. For example, say that your assessment shows students are not writing at the performance level determined by your faculty. You would use the curriculum map to identify the courses addressing your writing outcome, or containing writing assignments. Then, you would pull the syllabi for those courses and convene the faculty teaching those courses. They would review and converse about how they are addressing writing in their courses and determine if there would be approaches to re-structuring their outcomes or assignments that would lead to an improved progression of learning across the curriculum. Upon selection of curriculum changes, faculty would revise their course’s design to incorporate these changes.

**Guide:**

At minimum, the curriculum map should map all of the program’s learning outcomes to all of the course and experience requirements and electives. If your academic program requires courses from outside of your unit, they will also need to be included in the curriculum map.

Attach Curriculum Map

A copy of your program’s curriculum maps will be located here, if it was submitted to the Office of Curriculum, Learning Design & Academic Assessment: [https://nau.edu/Provost/Curriculum-and- Assessment/Curriculum-and-Assessment-Coordinating-Committee/DPE-Archive/](https://nau.edu/Provost/Curriculum-and-%20Assessment/Curriculum-and-Assessment-Coordinating-Committee/DPE-Archive/)

When submitting your map, please be sure it contains the following [see the example map below and associated formatting for each aspect]:

* All courses located under the “Major Requirements” section in the Details Tab of the Academic Catalog are included (e.g., all courses required for the major, **even if those courses are not offered by your academic unit or under your unit’s prefix**)
* Ensure groupings of electives are mapped OR describe the purpose of the group of electives to the major’s curriculum
* Clear and intentional structure and sequence of courses (later coursework building logically on prerequisite courses) as evidenced by:
	+ use of learning levels applied to matrix cells, such as I-Introduce, R-Reinforce, A-Apply, S-Synthesize etc. or
	+ increased complexity of learning outcomes, etc.
	+ reviewers will be looking for evidence that the curriculum has a coherent sequencing and structure; students and faculty of the program can articulate the reasons behind the structure and sequencing; prerequisites are logical and reasonable

The following example is pulled from a map for the Forestry BS program:

|  |  |  |
| --- | --- | --- |
|   | **Communications** | **Science and Mathematics** |
| I = Introduced; R - Reinforced; RA - Reinforced through application; M - Mastery within the context of our curriculum | *Oral:* Competencies must be documented as an ability in preparing, and delivering effective oral presentations. | *Written:* Competencies must be documented as: | *Biological sciences:* Competencies must be documented as: | *Physical sciences:* Competencies must be documented as an understanding of physical and chemical properties, measurements, structure, and states of matter. | *Mathematics:* Competencies must be documented as the ability to understand and use the basic approaches and applications of mathematics and statistics for analysis and problem solving as appropriate for the programs stated outcomes. |
| Course | A proficiency in English composition, technical/business writing, and writing for non-professional audiences. | An ability to read with comprehension a variety of documents, and critically evaluate opposing viewpoints. | An understanding of the components, patterns, and processes of biological and ecological systems across spatial and temporal scales. | An understanding of molecular biology, cells, organisms, populations, species, communities, and ecosystems. |
| FOR 101 Introduction to Forestry |   | R |   | I | I | I |   |
| FOR 211 Forest Measurements |   | R |   |   |   |   | R |
| FOR 215 Writing in Forestry |   | R | R |   |   |   |   |
| FOR 220 Introduction to Forest and Range Plants |   |   |   |   |   |   |   |
| ENG 105 Critical Reading and Writing in the University Community | I  | I/R | I/R |   |   |   |   |
|  MAT 125 Precalculus Mathematics |   |   |   |   |   |   | I/R |
|  STA 270 Applied Statistics |   |   |   |   |   |   | R |
| FOR 325W Forest Management III | R | R | R | RA | RA |   | R |
| FOR 326W Forest Management IV |   | R | R |   |   |   | R |
| FOR 424C Forest Ecosystem Planning II | M | M | M |   |   |   | M |
| **The purpose of the certificate is to provide depth and focus of learning in a specific area of Forestry of interest to the student: Fire Ecology and Management, Forest Health and Ecological Restoration, Human Dimensions of Forest Management, Wildlife Ecology and Management, International Forestry and Conversation, or an individualized focus** |