



Academic Quality and Workforce

Uniform Pre-Nursing Curriculum

A Report to the Texas Legislature

House Bill 3078, 84th Texas Legislature

October 2016

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Texas Higher Education Coordinating Board



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Agency Mission

The mission of the Texas Higher Education Coordinating Board (THECB) is to provide leadership and coordination for the Texas higher education system and to promote access, affordability, quality, success, and cost efficiency through *60x30TX*, resulting in a globally competent workforce that positions Texas as an international leader.

Agency Vision

The THECB will be recognized as an international leader in developing and implementing innovative higher education policy to accomplish our mission.

Agency Philosophy

The THECB will promote access to and success in quality higher education across the state with the conviction that access and success without quality is mediocrity and that quality without access and success is unacceptable.

The Coordinating Board's core values are:

Accountability: We hold ourselves responsible for our actions and welcome every opportunity to educate stakeholders about our policies, decisions, and aspirations.

Efficiency: We accomplish our work using resources in the most effective manner.

Collaboration: We develop partnerships that result in student success and a highly qualified, globally competent workforce.

Excellence: We strive for excellence in all our endeavors.

The Texas Higher Education Coordinating Board does not discriminate on the basis of race, color, national origin, gender, religion, age or disability in employment or the provision of services.

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Executive Summary

Background

House Bill (HB) 3078, 84th Texas Legislature, Regular Session, directed the Texas Higher Education Coordinating Board (Coordinating Board) to appoint an advisory committee charged with making recommendations to the Legislature for creating a uniform pre-nursing curriculum and to specify the following: 1) the prerequisite courses that a student must complete to qualify for admission consideration to each undergraduate nursing program offered by an institution of higher education in Texas, and 2) the content of prerequisite courses.

To complete its charge, the advisory committee, whose membership was comprised of representatives from community and technical colleges, general academic teaching institutions and health science centers, as well as professional nursing associations and the Texas Board of Nursing, sent all state-supported nursing programs in Texas a survey by email on January 15, 2016. The goal of the survey was to determine the prerequisite courses required to apply to each nursing program, prerequisite courses required before starting the nursing program (taken between application and first nursing course), and whether courses were part of the institution's core curriculum. A total of 26 baccalaureate (BSN) and 54 associate degree (ADN) professional nursing programs at public institutions were surveyed, with a 100 percent response rate. Specific to the charges to this committee, analysis of the survey identified significant commonalities among prerequisite courses required for admission consideration to each nursing program.

As a result of the data analysis, the advisory committee recommends seven prerequisite courses for admission consideration to baccalaureate degree nursing programs and two prerequisite courses for admission consideration to associate degree nursing programs. Differences in the number of prerequisite courses represent the difference in the level of education for ADN and BSN degrees.

Charge 1

Courses Recommended for Pre-nursing Curriculum for Consideration for Admission to Baccalaureate Degree Nursing Programs

- Anatomy and Physiology I with lab or course equivalent
- Anatomy and Physiology II with lab or course equivalent
- Microbiology with lab*
- Chemistry with lab*
- General Psychology
- Human Growth and Development
- Math Statistics (Math 1342)

*All but two (7.7 percent) baccalaureate degree programs require a lab for Microbiology, and all but four (15.4 percent) require a lab for Chemistry. The courses are offered by science departments rather than by nursing departments. Since some science departments do not offer Microbiology and Chemistry with associated labs and nursing students without these labs have successfully graduated and become licensed registered nurses, the advisory committee recommends that a cross-disciplinary study between science and nursing is needed to determine how essential these labs are as prerequisites for nursing majors. Until this

assessment is done, *the advisory committee recommends that nursing programs be allowed to waive the lab requirement when considering applicants with Microbiology and/or Chemistry taken at an institution that does not offer these labs.*

Courses Recommended for Pre-nursing Curriculum for Consideration for Admission to Associate Degree Nursing Programs, Licensed Vocational Nursing (LVN) to ADN Programs, and Allied Health/Paramedic to ADN programs

- Anatomy and Physiology I with lab or course equivalent
- Composition I (English 1301)

Charge 2

Content for Prerequisite Courses

Course content for all required course descriptions will be drawn from the *Lower-Division Academic Course Guide Manual (ACGM)*.

Transfer of Course Credits

In response to the survey question, "Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your program," 100 percent of both ADN and BSN respondents answered, "Yes."

The advisory committee recommends that all programs accept course substitutions in accordance with the Texas Common Course Numbering system and that completed nursing courses with a grade of C or better be accepted based on content.

Summary

It is the consensus of the advisory committee that there is value in establishing a common set of prerequisite courses for admission consideration to nursing programs. Data from the survey demonstrate that the ongoing work of ADN and BSN deans and directors have resulted in significant improvements in aligning courses and providing consistency across the state. As an example, the Consortium for Advancing Baccalaureate Nursing Education in Texas (CABNET) agreements have increased commonalities within ADN and BSN programs, as well as improved continuity between ADN and BSN programs. The advisory committee expects that this work will continue. The committee further notes that there are areas where more research into questions, such as the value of lab requirements in Chemistry and Microbiology, would provide evidence for making future changes.

The advisory committee recommends seven prerequisite courses for admission consideration to baccalaureate degree nursing programs and two prerequisite courses for admission consideration to associate degree nursing programs.

If the recommendations are accepted, the advisory committee recommends that their effect on student success in nursing programs (progression to graduation and first-time NCLEX pass rate) be assessed in five years. Furthermore, as the rigors of nursing practice are ever-changing and the role of the registered nurse is expanding, reviewing prerequisite requirements should be a routine process (every five years) to ensure that nurses are prepared to care for the needs of the citizens of Texas.

Introduction

The Texas Legislature has placed significant resources into the expansion of nursing education for over a decade. Programs such as the Nursing Shortage Reduction Program, the Nursing Innovation Grant Program, and the Hospital-Based Nursing Education Partnership Grant have all provided significant resources for the growth of nursing education programs.

Providing potential nursing students the ability to apply to multiple nursing programs requires identifying commonalities among the prerequisite courses required for different nursing programs and addressing the transferability of prerequisite courses from one nursing program to meet the prerequisite requirements of another. Students pursuing a nursing education in Texas should be provided maximum options.

House Bill 3078, 84th Texas Legislature, Regular Session, directed the Texas Higher Education Coordinating Board (THECB or Coordinating Board) to appoint an advisory committee to make recommendations for creating a uniform pre-nursing curriculum. All public institutions of higher education, including community and technical colleges, general academic teaching institutions and health science centers, as well as professional nursing associations, and the Texas Board of Nursing were invited to submit nominations for members of the advisory committee. Recommendations for membership of the advisory committee were considered and approved by the Coordinating Board at its October 2015 board meeting. Membership of the committee took into consideration the geographical representation of the state and the size of the institution.

The resulting advisory committee was composed of representatives from six community colleges, six general academic teaching institutions, three health science centers, and one each from the following agencies/organizations: the Texas Board of Nursing, Texas Nurses Association, Texas Organization of Nurse Executives, and Texas Higher Education Coordinating Board. Appendix A contains a list of advisory committee members.

The committee was charged with assessing the following: 1) The prerequisite courses required for each undergraduate professional nursing program in Texas, and 2) the ability of a student to use course credit earned at one institution of higher education to qualify for admission consideration to an undergraduate professional nursing program offered by another institution.

The advisory committee was required to make recommendations to the Legislature for creating a uniform pre-nursing curriculum and to specify the following: 1) the prerequisite courses a student must complete to qualify for admission consideration to each undergraduate nursing program offered by an institution of higher education in Texas, and 2) the content of the prerequisite courses.

Assumptions of Nursing Education

In defining the scope of the work, the advisory committee established several assumptions:

1. There are innate differences in associate degree nursing (ADN) and baccalaureate degree nursing (BSN) programs, based on the mission of community colleges, universities, or health science centers and requirements established by the Texas Board

of Nursing. These differences require individual foundational work that directs the appropriate prerequisites for each program level.

2. Admission to nursing programs is a competitive process that incorporates the review of necessary prerequisites, as well as other requirements set forth by each program.
3. The Texas Board of Nursing's *Differentiated Essential Competencies of Graduates of Texas Nursing Programs* establishes the progression of expectations across ADN and BSN programs, based on educational preparation.
4. National accreditation standards for BSN and ADN programs differ.
5. The Texas Board of Nursing requires that nursing faculty plan, implement, and evaluate nursing curriculum.
6. Nursing programs are preparing students to be generalists in the practice of nursing.
7. As the profession changes to meet the science of nursing, prerequisite courses may change as determined by the nursing faculty.
8. The advisory committee is not in a position to comment on non-nursing course requirements set by each institution.
9. For BSN programs, students must be "Texas core complete" to meet graduation requirements. The Texas core curriculum requirements, however, were not within the scope of this committee's charge.

Initial Licensure Programs

The length of time to complete the programs, and the differences in the total number of semester credit hours and curriculum between associate degree and baccalaureate degree nursing education programs require separate study and discussion. This report addresses the specific pre-nursing curriculum, which HB 3078 defines as "the prerequisite courses that a student must complete to qualify for consideration for admission to each undergraduate professional nursing program offered by an institution of higher education."

This report focuses on two types of initial licensure programs, ADN and BSN.

- *Associate degree (ADN) nursing program:* professional nursing program offered through a community college that traditionally requires prerequisite courses plus two years of study.
- *Baccalaureate degree (BSN) nursing program:* professional nursing program offered through a university or health science center that traditionally requires four years of study, with nursing curricula usually occurring during the last two years.

Associate degree nursing programs have two entry options for pre-licensure students who are licensed as either vocational nurses (LVN to ADN transition) or allied health/paramedics (Allied Health or Paramedic to ADN). The programs are usually one year in length and are defined as follows:

- *LVN to ADN transition* – For students admitted to and continuing enrollment in an approved associate degree nursing program (ADN) who have completed a vocational nursing program and may hold a license as licensed practical or vocational nurses (LVN) and who are not registered nurses.

- *Allied Health/Paramedic to ADN* – For students admitted to and continuing enrollment in an approved associate degree nursing program (ADN) who have a certificate or degree as an allied health provider or paramedic.

Brief description of methodology and major contributors to report

The advisory committee met five times, with the first meeting held in Austin on November 11, 2015. At the meeting, the committee determined the need to conduct a survey of initial licensure nursing programs at public colleges and universities. All state-supported nursing programs were sent a survey by email on January 15, 2016. The goals of the survey were to determine which prerequisite courses are required to apply for admission consideration and which are required to begin each nursing program, as well as to identify whether the courses are part of the institution's core curriculum.

The survey included questions about the length of time it took for institutions of higher education to accept prerequisite courses, whether courses were accepted if a student's grade was lower than a C-, whether prerequisite math and science courses had prerequisite course requirements, and whether the program allowed substitutions for courses. The survey options included data related to pre-licensure associate degree nursing applicants, baccalaureate degree applicants, LVN-ADN applicants, and paramedic-to-ADN applicants. The survey also posed a question about whether the responding institution accepted course credit earned at another institution to allow potential students to qualify for admission consideration. Appendix B contains a copy of the survey. A total of 26 baccalaureate and 54 associate degree professional nursing programs at public institutions of higher education were surveyed, a 100 percent response rate.

The survey queried respondents about prerequisite course requirements at two levels: 1) the courses required for applicants to apply to the nursing program, and 2) any additional courses that an institution may require to be completed prior to students starting the nursing program.

Pre-nursing applicant: applying to nursing program – Applicant who is completing prerequisites (including Texas Core courses for the BSN, and science prerequisites) for consideration of admission. May be in the process of completing the last few required courses to be placed in applicant pool for consideration.

Pre-licensure student: admitted to nursing – Applicant who has met all admission requirements for a professional nursing program and has received official notification of admission. May be in the process of completing final prerequisites with admission, but all must be successfully completed when starting the first semester of nursing program.

In response to the charge and after careful analysis and consideration of all data received, the committee focused on the commonalities among prerequisite courses that different institutions require for admission consideration into nursing programs.

Findings

From the assumptions and the survey results, a database (found in Appendix C) was developed using the information provided by the nursing programs. After careful deliberation, the committee then separately outlined recommendations for uniform pre-nursing curriculum for associate degree nursing programs and baccalaureate degree nursing programs.

Charge 1

Courses Recommended for Pre-nursing Curriculum for Admission Consideration to Baccalaureate Degree Nursing Programs

- Anatomy and Physiology I with lab or course equivalent
- Anatomy and Physiology II with lab or course equivalent
- Microbiology with lab*
- Chemistry with lab*
- General Psychology
- Human Growth and Development
- Math Statistics (Math 1342)

*All but two (7.7 percent) baccalaureate degree programs require a lab for Microbiology, and all but four (15.4 percent) require a lab for Chemistry. These courses are not offered by nursing departments but are offered by the science department. As those science departments do not offer Microbiology and Chemistry with associated labs, the advisory committee recommends that a cross-disciplinary study between science and nursing is needed to determine how essential these labs are as prerequisites for nursing majors. *Until this assessment is complete, the advisory committee recommends that nursing programs be allowed to waive the lab requirement when considering applicants with Microbiology and/or Chemistry taken at an institution that does not offer these labs.*

Courses Recommended for Pre-nursing Curriculum for Consideration for Admission to Associate Degree Nursing Programs or Licensed Vocational Nursing (LVN) to ADN Programs

- Anatomy and Physiology I with lab or course equivalent
- Composition I (English 1301)

Charge 2

Content for Prerequisite Courses

Course content for all required course descriptions will be drawn from the *Lower-Division Academic Course Guide Manual (ACGM)*.

Transfer of Course Credits

In response to the survey question, "Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your program," 100 percent of both ADN and BSN respondents answered "Yes."

The advisory committee recommends that all programs accept course substitutions in accordance with the Texas Common Course Numbering system and that completed nursing courses with a grade of C or better be accepted based on content.

To further increase transferability, the committee recommends that student competency be assessed using other methods than arbitrary timeframes required for courses to transfer (e.g., must have had anatomy and physiology within the last five years).

Appendix A

Uniform Pre-Nursing Curriculum Advisory Committee Members

Community College Representatives:

Nancy Walters, MSN, RN, Austin Community College, Department Chair, Associate Degree Nursing

Gail Meagher, MSN, RN, El Paso Community College, Dean of Nursing

Gie Archer, MSN, RN, North Central Texas College (Gainesville), Gainesville, Dean, Health and Human Science, RN Faculty, LVN Program Director

Courtney Shoalmire, MSN, RN, Texarkana College, Dean of Health Sciences

Helen Reid, Ph.D., RN, Trinity Valley Community College (Kaufman), Health Science Center Provost

Elizabeth Arnold, MSN, RN, Vernon College, Associate Degree Nursing, Assistant Director

General Academic Institution

Representatives:

Philisie Washington, Ph.D., RN, Prairie View A&M University (Houston), Director, Baccalaureate Degree Nursing Program

Gayle Timmerman, Ph.D., RN, The University of Texas at Austin, Associate Dean for Academic Programs

Beth Mancini, Ph.D., RN, The University of Texas at Arlington, Senior Associate Dean for Education Innovation

Roxanna Nelson, The University of Texas at San Antonio, Assistant Director, University Health Professions Office

Pamela Martin, Ph.D., RN, The University of Texas at Tyler, Director, Baccalaureate Degree Nursing Program

Carolina Huerta, Ph.D., RN, The University of Texas Rio Grande Valley, Edinburg, Director, School of Nursing

Health Science Center Representatives:

Karla Chapman, Ph.D., Texas Tech University Health Sciences Center (Lubbock), Associate Academic Dean – Student Affairs and Education Support Services

Debra Wise Matthews, Ph.D., RN, Texas A&M University Health Science Center (College Station), Associate Dean for Academic Affairs

Cynthia O'Neal, Ph.D., RN, The University of Texas Health Science Center- San Antonio, Assistant Dean, Undergraduate Studies, Associate Professor of Nursing

Agency/Nursing Association

Representatives:

Jan Hooper, Ph.D., RN, Texas Board of Nursing (Austin), Lead Nursing Consultant for Education

Kathryn Tart, Ph.D., RN, Texas Nurses Association, University of Houston, Dean and Professor of Nursing

Caryn Iverson, Ph.D., RN, Texas Organization of Nurse Executives, Chief Operating Officer, Las Palmas Medical Center, El Paso

Rex Peebles, Ph.D., Assistant Commissioner, Academic Quality and Workforce Division, Texas Higher Education Coordinating Board

Appendix B

Survey of Prerequisite Course Requirements

Introduction

HB 3078, 84th Texas Legislature, Regular Session, directed the Coordinating Board to appoint an Advisory Committee to make recommendations for creation of a uniform pre-nursing curriculum. The Advisory Committee is composed of representatives from six community colleges, six general academic teaching institutions, three health science centers, and one each from the following agencies/organizations: the Texas Board of Nursing, Texas Nurses Association, Texas Organization of Nurse Executives, and Texas Higher Education Coordinating Board.

The committee was charged with assessing 1) the prerequisite courses required for each undergraduate professional nursing program in Texas and 2) the ability of a student to use course credit earned at one institution of higher education to qualify for consideration for admission to an undergraduate professional nursing program offered by another institution of higher education. The advisory committee is required to make recommendations to the legislature for the creation of a uniform pre-nursing curriculum and specify 1) the prerequisite courses that a student must complete to qualify for consideration for admission to each undergraduate nursing program offered by an institution of higher education and 2) content of the prerequisite courses.

Survey data from nursing programs at each public institution of higher education will be analyzed in aggregate form to inform recommendations to the Coordinating Board by September 1, 2016, and the Texas Legislature by January 1, 2017.

Thank you for taking the time to respond to the following questions related to requirements for consideration of application to and admission to your nursing program. Based on the type of program, i.e., ADN or BSN, you will be directed to specific items.

Instructions: Please complete the applicable section(s) of the survey for your nursing program. The options include: BSN, RN to BSN, 2nd Degree BSN track, ADN, LVN to ADN, and Allied Health or Paramedic to ADN. If your institution does not use course rubrics and numbers in the Texas Common Course Numbering System (TCCNS), please indicate the TCCNS course equivalent.

The deadline for completing the survey is February 12, 2016.

Definitions for Universities and Health-Related Institutions

CABNET (Consortium for Advancing Baccalaureate Nursing Education in Texas) agreement – an articulation agreement between a community college and university that provides a clear pathway for students to obtain a baccalaureate degree in nursing. These agreements list the general education courses ADN students will need to complete for the ADN and RN to BSN degrees, allowing students to know what courses are required and which plans will be accepted by which universities.

Generic baccalaureate degree nursing program – for students admitted to and continuing enrollment in an approved baccalaureate degree nursing program (BSN) and who are not registered nurses.

LVN to BSN transition program – for students admitted to and continuing enrollment in an approved baccalaureate degree nursing program (BSN) who have completed a vocational nursing program and may hold a license as a licensed vocational nurse and who are not registered nurses.

RN to BSN degree program – for students admitted to and continuing enrollment in an approved baccalaureate degree nursing program (BSN) who already possess an associate degree or a diploma in nursing and are licensed registered nurses.

Second (2nd) degree BSN program – for students admitted to and continuing enrollment in an approved baccalaureate degree nursing program (BSN) who already have a baccalaureate degree in a discipline other than nursing.

Texas Core Curriculum – the curriculum in liberal arts, humanities, and sciences and political, social, and cultural history that all undergraduate students of an institution of higher education in Texas are required to complete before receiving an academic undergraduate degree.

Texas Common Course Numbering System: a course numbering system approved by the Texas Higher Education Coordinating Board for lower-division academic courses that assigns common course numbers in order to facilitate the transfer of lower-division academic courses among institutions of higher education by promoting consistency in course designations and identification.

1. **Institution name:** (text)

2. **Name and Title of Individual Completing the Survey:** (text)

3. **BSN**

3.1. Do you offer a generic BSN program? Yes/No

3.1.1. (If Yes) What is the program length in months and semesters?

3.1.2. What is the total number of Semester Credit Hours (SCH) required for the degree?

3.2. When are students admitted as nursing majors to the BSN program? (Select all that apply.)

Freshman

Sophomore

Junior

Senior

Other: (explain)

3.3. Do you offer an RN to BSN program? (If Yes→ answer questions 4.1 – 4.6.)

3.4. **The following chart is to identify the prerequisites for your nursing program.**

For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your BSN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses, and/or part of your institution's core curriculum.

Column 1	Column 2	Column 3	Column 4	Column 5
Courses	Course rubric/number/course name (if not a TCCNS rubric and number, include TCCNS equivalent)	Check if course is a prerequisite that must be taken before student can apply to nursing program	Check if course is a prerequisite that must be taken before student can take nursing courses	Check if course is part of the institution's core curriculum
A&P 1 with lab				
A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				

Physiology with lab				
Physiology without lab				
Microbiology with lab				
Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				
Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				
Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

3.5. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology, must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

3.6. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

3.7. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

3.8. Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

3.9. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342

Elementary Statistical Methods

3.10. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your BSN program?

Yes

No: explain why you do not:

4. **RN-BSN** (If Yes to 3.3)

4.1. Do you have signed CABNET agreements with ADN programs?

No

Yes

4.2. What is the program length in months and semesters?

4.3. Indicate the format of the didactic track/program. Select all that apply.

Completely online

Hybrid (combination online/face to face)

Campus attendance only

4.4. Does the RN-BSN program have a clinical component?

No

Yes: how many clinical hours are required?

4.5 **The following chart is to identify the prerequisites for your nursing program.** For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your RN-BSN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses; and/or part of your institution's core curriculum.

Column 1	Column 2	Column 3	Column 4	Column 5
Courses	Course rubric/number/course name (if not a TCCNS rubric and number, include TCCNS equivalent)	Check if course is a prerequisite that must be taken before	Check if course is a prerequisite that must be taken before	Check if course is part of the institution's

		student can apply to nursing program	student can take nursing courses	core curriculum
A&P 1 with lab				
A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				
Physiology with lab				
Physiology without lab				
Microbiology with lab				
Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				
Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				
Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

4.6. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology, must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

4.7. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

4.8. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

4.9. Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

4.10. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342

Elementary Statistical Methods

4.11. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your RN-BSN program?

Yes

No: explain why you do not:

5. Do you offer a **2nd Degree BSN track**? Yes/No

5.1. Does the 2nd degree BSN track have the same curriculum as the generic BSN program?

Yes/No.

If yes, skip the rest of the questions in Section 5. If no, please answer the following questions:

5.2. What is the program length in months and semesters?

5.3. Indicate the format of the didactic track/program. Select all that apply.

Totally online

Hybrid (combination online/face to face)

Campus attendance only

5.4. The following chart is to identify the prerequisites for your nursing program.

For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your 2nd Degree BSN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses; and/or part of your institution's core curriculum. Identify the course name/rubric/number:

Column 1	Column 2	Column 3	Column 4	Column 5
Science Courses	Course rubric/number/course name (if not a TCCNS rubric and number, include TCCNS equivalent)	Check if course is a prerequisite that must be taken before student can apply to nursing program	Check if course is a prerequisite that must be taken before student can take nursing courses	Check if course is part of the institution's core curriculum
A&P 1 with lab				
A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				
Physiology with lab				
Physiology without lab				
Microbiology with lab				
Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				

Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				
Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

5.5. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology, must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

5.6. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

5.7. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

5.8. Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

5.9. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342

Elementary Statistical Methods

5.10. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your 2nd Degree BSN track?

Yes

No: explain why you do not:

Use the following as definitions when responding to the questions regarding ADN programs:
Definitions for Community College

Associate degree nursing program – referred to as ADN.

Allied Health to ADN program – for students admitted to and continuing enrollment in an approved associate degree nursing program who have a certificate or degree in an allied health discipline other than a paramedic or LVN.

Generic associate degree nursing program – for students admitted to and continuing enrollment in an approved associate degree nursing program (ADN) and who are not registered nurses.

LVN to ADN transition program– for students admitted to and continuing enrollment in an approved associate degree nursing program (ADN) who have completed a vocational nursing program and may hold a license as licensed practical or vocational nurses (LVN) and who are not registered nurses.

Paramedic to ADN – for students admitted to and continuing enrollment in an approved associate degree nursing program (ADN) who have a certificate or degree as a paramedic.

Texas Core Curriculum – the curriculum in liberal arts, humanities, and sciences and political, social, and cultural history that all undergraduate students of an institution of higher education in Texas are required to complete before receiving an academic undergraduate degree.

3. ADN (if check then go to the following items)

3.1. Do you offer a generic associate degree nursing program? Yes/No

3.1.1. If yes, what is the program length in months and semesters?

3.1.2. What is the total number of Semester Credit Hours (SCH) required for the degree?

3.2. When are students admitted as nursing majors to the ADN program? (Select all that apply.)

Freshman

Sophomore

3.3 Do you offer an LVN to ADN program? (If Yes→ answer questions 4.1 – 4.6)

3.4 The following chart is to identify the prerequisites for your nursing program.

For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your ADN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses, and/or part of your institution's core curriculum. Identify the course name/rubric/number:

Column 1	Column 2	Column 3	Column 4	Column 5
Courses	Course rubric/number/course name	Check if course is a prerequisite that must be taken before student can apply to nursing program	Check if course is a prerequisite that must be taken before student can take nursing courses	Check if course is part of the institution's core curriculum
A&P 1 with lab				
A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				
Physiology with lab				
Physiology without lab				
Microbiology with lab				
Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				
Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				

Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

3.5. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology, must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

3.6. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

3.7. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

3.8. Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

3.9. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342 Elementary Statistical Methods

3.10. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your ADN program?

Yes

No: explain why you do not:

4. LVN to ADN (If Yes to 3.3)

4.1. What is the program length in months and semesters?

4.2. What is the total number of Semester Credit Hours (SCH) required for the degree?

4.3. Specify any differences in admission requirements from generic students:

4.4. Indicate the format of the didactic track/program. (Select all that apply.)

Completely online

Blended (combination online/face to face)

Campus attendance only

4.5. The following chart is to identify the prerequisites for your nursing program.

For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your LVN-ADN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses, and/or part of your institution's core curriculum. Identify the course name/rubric/number:

Column 1	Column 2	Column 3	Column 4	Column 5
Courses	Course rubric/number/course name	Check if course is a prerequisite that must be taken before student can apply to nursing program	Check if course is a prerequisite that must be taken before student can take nursing courses	Check if course is part of the institution's core curriculum
A&P 1 with lab				
A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				
Physiology with lab				
Physiology without lab				
Microbiology with lab				

Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				
Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				
Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

4.6. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology, must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

4.7. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

4.8. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

4.9 Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

4.10. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342
Elementary Statistical Methods

4.11. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your LVN to ADN program?

Yes

No: explain why you do not:

5. Do you offer an **Allied Health or Paramedic to ADN track**? Yes/No

5.1. What is the program length in months and semesters?

5.2. What is the total number of Semester Credit Hours (SCH) required for the degree?

5.3. Specify any differences in admission requirements from generic students:

5.4. Indicate the format of the didactic track/program. (Select all that apply.)

Completely online

Blended (combination online/face to face)

Campus attendance only

5.5. **The following chart is to identify the prerequisites for your nursing program.** For each prerequisite course, identify the course by rubric, number, and course name (Column 2). Place a check mark in the appropriate column (Column 3-5) to indicate whether the following courses are prerequisites for your Allied Health or Paramedic-ADN program; required before a student can apply for the nursing program; must be taken before a student can start nursing courses, and/or part of your institution's core curriculum. Identify the course name/rubric/number:

Column 1	Column 2	Column 3	Column 4	Column 5
Courses	Course rubric/number/course name	Check if course is a prerequisite that must be taken before student can apply to nursing program	Check if course is a prerequisite that must be taken before student can take nursing courses	Check if course is part of the institution's core curriculum
A&P 1 with lab				

A&P 1 without lab				
A&P 2 with lab				
A&P 2 without lab				
Anatomy with lab				
Anatomy without lab				
Physiology with lab				
Physiology without lab				
Microbiology with lab				
Microbiology without lab				
Chemistry with lab				
Chemistry without lab				
Other science courses (list)				
Pathophysiology				
Pharmacology				
Introduction to Nursing				
Other nursing courses (list)				
Nutrition				
Lifespan Growth and Development				
Psychology				
Math (list)				
Other courses:				

5.6. Does your program have an "expiration date" for prerequisite courses, e.g., anatomy and physiology must be taken within 5 years of application for admission?

No

Yes: list course(s) and time limit:

5.7. Do you accept grades lower than a "C-" for prerequisite courses?

No

Yes: indicate which course(s), and explain:

5.8. Does your math requirement have a prerequisite course?

No

Yes: list rubric/number/course name for math courses and their prerequisites:

5.9. Do your science courses have prerequisite courses?

No

Yes: list rubric/number/course name for science courses and their prerequisites:

5.10. Does your program accept substitutions for courses? (e.g., psyc stats for math stats)

No

Yes: list rubric/number/course name for required and substitution courses:

Example: PSYCH 2317 Statistical Methods in Psychology for MATH 2342
Elementary Statistical Methods

5.11. Do you allow students to use course credit earned at another institution of higher education to qualify for consideration for admission to your Allied Health or Paramedic to ADN program?

Yes

No: explain why you do not:

Appendix C: Summary of Survey Data

Associate Degree Nursing Program Survey Results

Generic Programs College	A&P I	A&P II	Microbiol.	Human G&D	General Psych	English 1301	Creative Arts/Lang., Phil., Cult	Nursing Pre-reqs	Other Gen Ed Courses	Other Gen Ed Courses
Alvin Community College	x	x	x	x	x	x	x			
Amarillo College	x	x	x		x	x	x		SPCH	
Angelina College	x	x	x	x	x	x	x	Dosage Calc. Pharm		
Austin Community College	Anatomy	Physiology	x		x	x	PHIL 2306			
Blinn College	x	x	x	x	x		x			
Brazosport College	x	x	x	x		x	x		Med Term	Gen Biol
Brookhaven College	x	x	x	x		x	PHIL 2306		CHEM	
Central Texas College	x	x	x	x	x	x	x	Pharm		
Clarendon College	x	x	x	x	x	x	DRAM 1310		MATH	Nutrition
College of the Mainland	x	x	x	x	x	x	x			
Collin College/Comm. College District	x	x	x	x	x	x	x			
Delta Mart College	x	x	x		x	x	x		SPCH	
El Centro College	x	x	x	x	x	x	x			
El Paso Community College	x	x		x		x	x	Pharm.	MATH	
Galveston College	x	x	x	x	x	x	x	Med Term		
Grayson College	x	x	x	x	x	x	x		MATH	
Hill College	x	x	x	x		x	x		MATH	Nutrition
Houston Community College	x	x	x	x	x	x	x			
Howard College	x	x	x	x	x	x	x		MATH	
Kilgore College	x	x	x	x		x	x		CHEM	
Laredo Community College	x	x	x	x	x	x	x			
Lee College	x	x	x	x	x	x	x	Pharm	ENGL 1302	
Lone Star College-Kingwood	x	x	x		x	x	x			
Lone Star College-Montgomery	x	x	x		x	x	x			
Lone Star College-Tomball	x	x	x		x	x	x			
Lone Star College-CyFair	x	x	x		x	x	x			
Lone Star College-North Harris	x	x	x		x	x	x			
McLennan Community College	x	x	x	x	x	x	x			
Midland College	x	x		x	x	x	x			
Mountain View College	x	x	x		x	x	x		MATH	PHED 164
Navarro College	x	x	x	x		x	x	Intro to Health Prof.		
North Central Texas College	x	x	x	x		x	x		MATH	
Northeast Texas Community College	x	x	x	x		x	PHIL 2306		MATH	
Odessa College	x	x		x		x	x			
Panola College	x	x	x	x	x	x	x			
Ranger College	x	x	x	x	x	x	x			
San Antonio College	x	x	x	x	x	x	PHIL 2306			
San Jacinto College-Central	x	x	x		x	x	x		MATH	ENGL 1302
South Plains College	x	x	x	x		x	x			
South Texas College	x	x			x	x	x	Intro to Nursing		
Southwest Texas Junior College	x	x	x	x		x	PHIL 2306		EDUC 110	
Tarrant County College	x	x	x	x	x	x	x			
Temple College	x	x		x	x	x	x			
Texarkana College	x	x	x	x	x	x	x			
Texas Southmost College	x	x	x		x	x	x		MATH	
Trinity Valley Community College	x	x	x	x	x	x	x			
Tyler Junior College	x	x	x	x	x	x	x			
Vernon College	x	x		x	x	x	x	Pathophysiology	MATH	
Victoria College	x	x	x	x	x	x	x		COSC 1301	Learning Frameworks
Weatherford College	x	x	x	x	x	x	x			
Wharton County Junior College	x	x	x	x	x	x	x			

Legend

Pre-requisite to apply or in process at time of application
Pre-requisite to start core nursing courses
Concurrent courses

Licensed Vocational Nurse to ADN Program Survey Results

LVN-to-ADN Programs - College	A&P I	A&P II	Microbiol ogy	Human G& D	General Psycholog y	English 1301	Creative Arts/Lang., Phil,Cult	Nursing Pre- req	Other Gen Ed	Other Gen Ed
Alvin Community College	x	x	x	x	x	x	x			
Amarillo College	x	x	x		x	x	x		SPCH	
Angelina College	x	x	x	x	x	x	x	Dosage		
Austin Community College	x	x	x	x	x	x	x	Pharm Pharm & Health Ass.	SPCH	MATH
Blinn College	x	x	x	x	x	x	x			
Brazosport College	x	x	x	x		x	x		Gen Biol	Med Term
Central Texas College	x	x	x	x	x	x	x			
Clarendon College	x	x	x	x	x	x	DRAM 1310		MATH	Nutrition
College of the Mainland	x	x	x	x	x	x	x			
Collin College Comm. College Distri	x	x	x	x	x	x	x			
Del Mar College	x	x	x		x	x	PHIL 2306		SPCH	
El Centro College	x	x	x	x	x	x	x			
El Paso Community College	x	x		x		x	x	Pharm Med Term & Health	MATH	
Galveston College	x	x	x	x	x	x	x			
Grayson College	x	x	x	x	x	x	x		MATH	
Hill College	x	x	x	x		x	x		MATH	
Houston Community College	x	x	x	x	x	x	x			
Howard College	x	x	x	x	x	x	x		MATH	
Kilgore College	x	x	x	x		x	x		CHEM	
Laredo Community College	x	x	x	x	x	x	x			
Lee College	x	x	x	x	x	x	x		ENGL 1302	
Lone Star College Kingwood	x	x	x		x	x	x	Pharm		
Lone Star College Montgomery	x	x	x		x	x	x	Pharm		
Lone Star College Tomball	x	x	x		x	x	x	Pharm		
Lone Star College-North Harris	x	x	x		x	x	x	Pharm		
McLennan Community College	x	x	x	x		x	x			
Midland college	x	x		x	x	x	x			
Navarro College	x	x	x	x	x	x	x		SPCH	Nutrition
North Central Texas College	x	x	x	x		x	x		MATH	
Northeast Texas Community College	x	x	x	x	x	x	PHIL 2306		x2 MATH	
Odessa College	x	x		x		x	x			
Panola College	x	x	x	x	x	x	x			
San Antonio College	x	x	x	x	x	x	PHIL 2306			
San Jacinto College Central	x	x	x	x	x	x	x		MATH	ENGL 1302
South Plains College	x	x	x	x		x	x			
South Texas College	x	x			x	x	x	Health Assessment		
Southwest Texas Junior College	x	x	x	x		x	PHIL 2306		EDUC 1100	
Tarrant County College	x	x	x	x	x	x	x			
Temple College	x	x		x	x	x	x			
Texarkana College	x	x	x	x	x	x	x			
Texas Southmost College	x	x	x		x	x	x		MATH	
Trinity Valley Community College	x	x	x	x	x	x	x			
Tyler Junior College	x	x	x	x	x	x	x			
Vernon College	x	x		x	x	x	x	Patho	MATH	
Victoria College	x	x	x	x	x	x	x		COSC 1301	
Weatherford College	x	x	x	x	x	x	x			
Wharton County Junior College	x	x	x	x	x	x	x			
Cisco College	x	x	x	x	x	x	x		Nutrition MATH	
Coastal Bend College	x	x	x	x	x	x	x			
Lamar State College Orange	x	x	x	x	x	x	x	Health Assessment & Patho Health Assessment	MATH	SPCH
Lamar State College Port Arthur	x	x	x	x	x	x	x		Nutrition	SPCH
Paris Junior College	x	x	x	x	x	x	x		Nutrition	Sociology
San Jacinto College South	x	x	x	x	x	x	x		MATH	ENGL 1302
TSTC West Texas	x	x	x	x	x	x	x			
Legend										
Pre-requisite to apply										
Pre-requisite to start core nursing courses										
Concurrent courses										

Appendix D

***Lower-Division Academic Course Guide Manual* Course Descriptions Prerequisite Courses Recommended for Baccalaureate Degree Nursing Programs**

1. Anatomy and Physiology I with lab or equivalent:

BIOL 2301 Anatomy & Physiology I (lecture)

Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis.

Learning Outcomes

Upon successful completion of this course, students will:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

BIOL 2101 Anatomy & Physiology Laboratory I (lab)

The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses.

Learning Outcomes

Upon successful completion of this course, students will:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.

BIOL 2401 Anatomy & Physiology I (lecture + lab)

This lecture and lab course should combine all of the elements of BIOL 2301 Anatomy and Physiology I (lecture) and BIOL 2101 Anatomy and Physiology I (lab), including the learning outcomes listed for both courses.

2. Anatomy and Physiology II with lab or equivalent

BIOL 2302 Anatomy & Physiology II (lecture)

Anatomy and Physiology II is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics). Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis.

Learning Outcomes

Upon successful completion of this course, students will:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

BIOL 2102 Anatomy & Physiology II (lab)

The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics).

Approval Number	26.0707.51 03
maximum SCH per student	1
maximum SCH per course	1
maximum contact hours per course	64

Learning Outcomes

Upon successful completion of this course, students will:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.
7. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decisions, recommendations, and predictions.

BIOL 2402 Anatomy & Physiology II (lecture + lab)

This lecture and lab course should combine all of the elements of BIOL 2302 Anatomy and Physiology II (lecture) and BIOL 2102 Anatomy and Physiology II (lab), including the learning outcomes listed for both courses.

Approval Number	26.0707.51 03
maximum SCH per student	4
maximum SCH per course	4
maximum contact hours per course	112

3. Microbiology:

BIOL 2321 Microbiology for Science Majors (lecture)

Principles of microbiology, including metabolism, structure, function, genetics, and phylogeny of microbes. The course will also examine the interactions of microbes with each other, hosts, and the environment.

Prerequisites: CHEM 1311 and 1111, or 1411 General Chemistry I (lecture and lab)

Plus one of the following biology sequences for majors:

BIOL 1306 and 1106, or 1406 Biology for Science Majors I (lecture and lab)

BIOL 1307 and 1107, or 1407 Biology for Science Majors II (lecture and lab)

or

BIOL 1311 and 1111, or 1411 General Botany (lecture and lab)

BIOL 1313 and 1113, or 1413 General Zoology (lecture and lab)

Learning Outcomes

Upon successful completion of this course, students will:

1. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
2. Identify unique structures, capabilities, and genetic information flow of microorganisms.
3. Compare the life cycles and structures of different types of viruses.
4. Discuss how microscopy has revealed the structure and function of microorganisms.
5. Give examples of the range of metabolic diversity exhibited by microorganisms, impact of metabolic characteristics on growth, and control of growth.
6. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
7. Describe the causes and consequences of mutations on microbial evolution and the generation of diversity as well as human impacts on adaptation.
8. Classify interactions of microorganisms on human and non-human hosts as neutral, detrimental, or beneficial.

BIOL 2121 Microbiology for Science Majors (lab)

This laboratory-based course accompanies Biology 2321, Microbiology for Science Majors. Laboratory activities will reinforce principles of microbiology, including metabolism, structure, function, genetics, and phylogeny of microbes. The course will also examine the interactions of microbes with each other, hosts, and the environment.

Pre-/Co-requisite: BIOL 2321 Microbiology for Science Majors

Learning Outcomes

Upon successful completion of this course, students will:

1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Provide examples of the impact of microorganisms on agriculture, environment, ecosystem, energy, and human health, including biofilms.
5. Identify unique structures, capabilities, and genetic information flow of microorganisms.
6. Compare the life cycles and structures of different types of viruses.
7. Discuss how microscopy has revealed the structure and function of microorganisms.

8. Give examples of the range of metabolic diversity exhibited by microorganisms, impact of metabolic characteristics on growth, and control of growth.
9. Describe evidence for the evolution of cells, organelles, and major metabolic pathways from early prokaryotes and how phylogenetic trees reflect evolutionary relationships.
10. Describe the causes and consequences of mutations on microbial evolution and the generation of diversity as well as human impacts on adaptation.
11. Classify interactions of microorganisms on human and non-human hosts as neutral, detrimental, or beneficial.

BIOL 2421 Microbiology for Science Majors (lecture + lab)

This lecture and lab course should combine all of the elements of BIOL 2321 (lecture) and BIOL 2121 (lab), including the learning outcomes listed for both courses.

BIOL 2420 Microbiology for Non-Science Majors (lecture + lab)

This lecture and lab course should combine all of the elements of BIOL 2320 Microbiology for Non-Science Majors (lecture) and BIOL 2120 Microbiology for Non-Science Majors Laboratory (lab), including the learning outcomes listed for both courses.

Approval Number	26.0503.51 03
maximum SCH per student	4
maximum SCH per course	4
maximum contact hours per course	112

4. Chemistry:

CHEM 1311 General Chemistry I (lecture)

Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry.

Co-requisite: CHEM 1111 General Chemistry I Laboratory

Prerequisite: MATH 1314 College Algebra or equivalent academic preparation

High school chemistry is strongly recommended

Learning Outcomes

Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.

10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills.

CHEM 1111 General Chemistry I (lab)

Basic laboratory experiments supporting theoretical principles presented in CHEM 1311; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports.

Co-requisite: CHEM 1311 General Chemistry I

Learning Outcomes

Upon successful completion of this course, students will:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data, and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

CHEM 1411 General Chemistry I (lecture + lab)

This lecture and lab course should combine all of the elements of 1311 General Chemistry I Lecture and 1111 General Chemistry I Lab, including the learning outcomes listed for both courses.

5. General Psychology:

PSYC 2301 General Psychology

General Psychology is a survey of the major psychological topics, theories and approaches to the scientific study of behavior and mental processes.

Learning Outcomes

Upon successful completion of this course, students will:

1. Identify various research methods and their characteristics used in the scientific study of psychology.
2. Describe the historical influences and early schools of thought that shaped the field of psychology.
3. Describe some of the prominent perspectives and approaches used in the study of psychology.
4. Use terminology unique to the study of psychology.
5. Describe accepted approaches and standards in psychological assessment and evaluation.
6. Identify factors in physiological and psychological processes involved in human behavior.

6. Human Growth and Development:

PSYC 2314 Lifespan Growth & Development

Life-Span Growth and Development is a study of social, emotional, cognitive and physical factors and influences of a developing human from conception to death.

Learning Outcomes

Upon successful completion of this course, students will:

1. Describe the stages of the developing person at different periods of the life span from birth to death.
2. Discuss the social, political, economic, and cultural forces that affect the development process of the individual.
3. Identify factors of responsible personal behavior with regard to issues such as sexual activity, substance abuse, marriage and parenting.
4. Explain the biosocial, cognitive and psychological influences throughout the lifespan as an ongoing set of processes, involving both continuity and change.
5. Describe the different developmental perspectives of the major theories of development (i.e. cognitive, learning, humanistic and psychodynamic).
6. Identify examples of some of the cultural and ethnic differences that influence development throughout the lifespan.
7. Discuss the various causes or reasons for disturbances in the developmental process.

7. Math Statistics

MATH 1342 Elementary Statistical Methods (3 SCH version, freshman level)

Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended.

Learning Outcomes

Upon successful completion of this course, students will:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

Prerequisite Courses Recommended for Associate Degree Nursing Programs

1. Anatomy and Physiology I with lab or equivalent:

BIOL 2301 Anatomy & Physiology I (lecture)

Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis.

Learning Outcomes

Upon successful completion of this course, students will:

1. Use anatomical terminology to identify and describe locations of major organs of each system covered.
2. Explain interrelationships among molecular, cellular, tissue, and organ functions in each system.
3. Describe the interdependency and interactions of the systems.
4. Explain contributions of organs and systems to the maintenance of homeostasis.
5. Identify causes and effects of homeostatic imbalances.
6. Describe modern technology and tools used to study anatomy and physiology.

BIOL 2101 Anatomy & Physiology Laboratory I (lab)

The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses.

Learning Outcomes

Upon successful completion of this course, students will:

1. Apply appropriate safety and ethical standards.
2. Locate and identify anatomical structures.
3. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.
4. Work collaboratively to perform experiments.
5. Demonstrate the steps involved in the scientific method.
6. Communicate results of scientific investigations, analyze data and formulate conclusions.

BIOL 2401 Anatomy & Physiology I (lecture + lab)

This lecture and lab course should combine all of the elements of BIOL 2301 Anatomy and Physiology I (lecture) and BIOL 2101 Anatomy and Physiology I (lab), including the learning outcomes listed for both courses.

2. English 1301

ENGL 1301 Composition I

Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis on effective rhetorical choices, including

audience, purpose, arrangement, and style. Focus on writing the academic essay as a vehicle for learning, communicating, and critical analysis.

Note: ENGL 1301 is a prerequisite for all 2000-level literature courses.

Approval Number	23.1301.51	12
maximum SCH per student.....		3
maximum SCH per course.....		3
maximum contact hours per course		64

Learning Outcomes

Upon successful completion of this course, students will:

1. Demonstrate knowledge of individual and collaborative writing processes.
2. Develop ideas with appropriate support and attribution.
3. Write in a style appropriate to audience and purpose.
4. Read, reflect, and respond critically to a variety of texts.
5. Use Edited American English in academic essays.



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