Technical Manual
Foundational Sciences & Achievement Exams Series

2023 Addendum

National League for Nursing
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Preface

This technical manual addendum serves to update the current manual with tables and test statistics for the 2023 calendar year. Exams included in this technical manual are currently undergoing further evaluation, after which the technical manual contents will be further updated and distributed. Four exams previously in the technical manual were removed as they are not currently active products of the National League of Nursing (NLN); these exams include RN Community Health Nurse, RN Critical Thinking, RN Maternity and Child Nursing, and PN Critical Thinking.

This technical manual is intended to assist nursing faculty members, administrators, student advisors, testing directors, and other test users in evaluating and interpreting the results of NLN Achievement tests for nursing programs, as well as setting testing policies regarding the use of these exams.

The National League for Nursing

NLN Mission

The National League for Nursing (NLN) promotes excellence in nursing education to build a strong and diverse nursing workforce to advance the health of our nation and the global community.

Overview of the NLN

Dedicated to excellence in nursing, the NLN is the premier organization for nurse faculty and leaders in nursing education. The NLN offers professional development, networking opportunities, testing services, nursing research grants, and public policy initiatives to its 40,000 individual and 1,200 institutional members. NLN members represent nursing education programs across the spectrum of higher education and health care organizations and agencies.

Founded in 1893 as the American Society of Superintendents of Training Schools for Nurses, the NLN was the first nursing organization in the United States. Headquartered in Washington, D.C., the NLN is led by a board of governors elected by membership for three-year terms. The volunteer board chair works with the NLN's president and chief executive officer.

Purpose and Overview of the NLN Achievement Exams

The NLN Achievement Examinations are standardized tests that assist schools of nursing in assessing and evaluating the outcomes of their educational programs and, in turn, help meet the needs of their students. The primary purpose of the Achievement Exams is to assess knowledge in particular content areas as students progress through the nursing program.

Schools of nursing may administer an achievement exam to their students at various times during the program including at the end of a particular course for which the curriculum and instruction are aligned to the test blueprints or at some other point in the program when faculty need to assess the knowledge and skills that make up the content of the exam.

Scores obtained from the Achievement Exams can be used for many purposes including academic advising and counseling, evaluation studies, and accreditation documentation.

Description of the NLN Achievement Exams

Each exam is designed to measure knowledge and understanding in particular academic content areas that are taught in nursing programs. Exams consist of 75 multiple-choice and alternate-style items that have undergone editorial, content, and sensitivity reviews to assess student achievement. In addition to the total number of items on an exam, the number of items that make up each content area can be found in the test blueprint table for the given exam. Students have 90 minutes to complete an exam.

TEST DEVELOPMENT

Each NLN Achievement Exam was developed according to a specified procedure designed to ensure high quality. This procedure is described in brief below.

1. Item writers submit items intended to measure the knowledge, skills, and abilities that are carefully defined in the test blueprints.
2. The items are reviewed to ensure clarity and accuracy.
3. Statistical data describing student performance on each item is gathered through field tests.
4. The statistical characteristics of the field-test items are evaluated to flag items that perform poorly or do not meet the appropriate difficulty level for the test.
5. Reliability estimates are obtained on the total test scores to indicate the extent to which examinees' scores can be expected to vary and to ensure that the amount of expected variation is at an acceptable level.
6. Summary statistics on the total scores are gathered on a standardization sample to enable test users to evaluate the performance of their examinees relative to a norm group.

Selection and Training of Item Writers

Items for the NLN Achievement exams are generally formulated by item writers who are specialists in the types of skills measured according to the test blueprint. NLN recognizes the diversity of applicants to nursing schools and is sensitive to selecting, insofar as is possible, item writers and reviewers from minority groups. Item writers receive training enabling them to create items that are educationally relevant, meet the test specifications, and perform well statistically. Even with this training, a large number of items must be created because many items fail to meet the high standards that determine which items are usable.

Review of Items Before Administration

Before an item is incorporated into an NLN Achievement Exam, it receives content, editorial, and sensitivity reviews. When an item is first submitted for review, at least two content experts independently review the content accuracy of the item. Items may be

revised or dropped altogether based on the content review. In addition, since NLN is committed to acknowledging the multicultural nature of our society, each item is also carefully reviewed by sensitivity reviewers to ensure that no inappropriate or insensitive material is included in the test. Items that are judged acceptable by all reviewers then become eligible for field testing.

Review of Items after Administration

After content and sensitivity reviews of items are completed, these items are included in an experimental test administration as unscored items to gather information about how the items perform. Statistical analyses of these field-test items include evaluating the proportion of students who answered the item correctly and the discrimination value for each item. The use of pretested items works to the advantage of examinees because pretesting allows test developers to identify poorly functioning items early in the development cycle and remove them from an item pool.

After an item has been pretested with a sizable number of applicants, a preliminary item analysis is conducted to identify the difficulty and discrimination values for each item. Item analysis provides information about the difficulty of the item, the relative attractiveness of the answer choices, and how well the item discriminated among examinees who have different levels of ability. Another analysis, differential item functioning, provides information about the extent to which an item functions in the same way for different subgroups of examinees who have been matched on ability. Pretest items are analyzed to identify items that perform well statistically. Items that are deemed unacceptable may include items that are too difficult or too easy and items that fail to distinguish examinees of high and low developed ability. These unacceptable items are eliminated from the item pool or revised and pretested again. Items that do not perform acceptably may be reviewed by test developers later to determine the possible causes of poor performance.

A faculty member or an examinee may occasionally raise a question about a test item at or after the test administration. These queries are conveyed to test developers, who carefully review the relevant items and prepare a response to the inquirer that addresses the issues noted.

Test Statistics

Key test statistics are reported for each exam to assist faculty in determining if the exam meets their requirements for the purpose(s) intended and to aid with the interpretation and use of scores. For the 2023 addendum to this technical manual, all statistics were updated based on students who completed the exam(s) during the 2023 calendar year. This group of students constitutes the 2023 operational norm group and is

inclusive of all institutions offering LPN or RN programs that used the exam(s) during the calendar year.

The statistical characteristics based on the 2023 operational norm group are summarized in each exam section and Appendix A and include:

- **N.** The sample size; specifically, the number of students in the 2023 operational norm group taking the exam.
- **Mean Score.** The average percentage correct score for the 2023 operational norm group.
- **Median Score.** The percentage correct score at the 50th percentile rank for the 2023 operational norm group.
- **Standard Deviation.** The standard deviation of the distribution of scores. It is computed as the square root of the variance of scores.
- **Reliability.** The index of internal consistency reliability (Cronbach's alpha) for the total score.
- **Standard Error of Measurement.** An estimate of the standard deviation of the errors of measurement in the scores.

Percentile ranks, found in Appendix B, offer Schools of Nursing the ability to compare the performance of their students with that of the 2023 operational norm group which represents students in other nursing programs across the United States that use the exam in their programs. Percentile ranks show the percentage of students scoring at or lower than a given score and are a reasonable method to compare the performance of a cohort to a norm group.

Scoring and Reporting Information

Each item in an achievement exam is dichotomously scored either correct or incorrect without penalty for guessing. Unanswered items are counted as incorrect. Scores reported in the Coaching Report present the percent correct for the total test and each topic as shown in the blueprints.

Each examinee and approved administrator(s) at institutions listed by the examinee, have access to a copy of the Coaching Report. The report provides the percentage correct for a given test and for each of the content areas (topics) within the test (e.g., the Anatomy and Physiology Exam will report a total test percentage correct and the percentage correct for each of the content areas: anatomy and physiology). Additionally, an average percentage correct for the total test and content areas is provided and represents the average percentage correct based on all examinees who have the test at the time the

report is generated. The average continues to refresh as more examinees complete the test. Appendix C provides a sample of an Institutional Coaching Report.

FOUNDATIONAL SCIENCES

ANATOMY AND PHYSIOLOGY

Description of the test

The purpose of this test is to assess knowledge of the normal structure and function of the human body. Content addresses cellular metabolism and membrane physiology, major body systems (cardiovascular, respiratory, musculoskeletal, gastrointestinal, endocrine, urinary, immune, integumentary), metabolism and temperature control, reproduction, and sensory systems.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Anatomy	25	33.3%
Physiology	50	66.6%
Total	**75**	**100%**

The objectives of the test are to measure students' knowledge in:
1. The normal structure of the human body.
2. The normal physiologic functions of structures in the human body.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
Anatomy and Physiology	70	61.7%	62.7%	12.37	0.869	4.48

MICROBIOLOGY

Description of the test

The purpose of this test is to assess students' knowledge of the basic processes, structures, and functions of microorganisms causing communicable diseases; the body's immunological response to foreign substances; and the epidemiology of communicable diseases. Items address the basic cellular, structural, and functional differences of microorganisms; the body's immunological responses to microorganisms; how communicable diseases are transmitted by microorganisms; and methods of disease control.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Microorganisms	25	33.3%
Immunology	25	33.3%
Epidemiology	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Identify basic processes, structural characteristics, and functional differences between various microorganisms.
2. Recognize appropriate techniques and measures for studying and culturing microorganisms.
3. Identify the body's immunological response to foreign substances and developed immunizations.
4. Recognize diseases caused by microorganisms.
5. Identify microbes that have an affinity for specific body systems.
6. Recognize factors involved in the transmission of communicable diseases.
7. Recognize chemical and physical methods of controlling microorganisms.
8. Identify incidence, manifestations, progression, and control of diseases caused by microorganisms.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
Microbiology	32	61.3%	62.7%	13.10	0.897	4.20

NORMAL NUTRITION

Description of the test

The purpose of this test is to assess students' knowledge of normal nutrition and its application throughout the life cycle. Content addresses nutrients in food and their role throughout the life cycle; digestion, absorption, and metabolism of food; social, economic, and legal factors affecting nutrition and food safety; and nutritional assessment.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Knowledge and Interpretation of Basic Information of Normal Nutrition	35	46.7%
Application of Knowledge of Normal Nutrition	40	53.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Recognize and interpret factual information basic to normal nutrition.
2. Apply facts and principles of nutrition in the process of promoting and maintaining health.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
Normal Nutrition	150	71.3%	73.3%	7.74	0.692	4.30

RN ACHIEVEMENT EXAMS

BASIC NURSING CARE I

Description of the test

The purpose of this test is to assess students' knowledge and application of the fundamentals of nursing care, with an emphasis on the nursing process, nursing diagnosis, and the nursing care plan. Content addresses basic concepts of health promotion and prevention, psychosocial health, skills basic to nursing practice and basic client needs for safety and comfort, professional accountability, as well as activity and exercise, rest and sleep, nutrition, and elimination.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Care Management	38	50.7%
Relationship Skills	37	49.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Identify the steps of the nursing process.
2. Recognize appropriate components of a nursing care plan, given client/family data.
3. Recognize concepts of professional accountability.
4. Assess client/family needs for safety and comfort, activity and exercise, rest and sleep, nutrition, and elimination.
5. Recognize common client/family responses to illness.
6. Select appropriate measures to meet identified client/family needs.
7. Recognize principles of therapeutic communication. Scoring Information

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
Basic Nursing Care I	129	73.4%	76.0%	9.15	0.776	4.33

BASIC NURSING CARE II

Description of the test

The purpose of this test is to assess students' knowledge and application of fundamental aspects of nursing care. Content addresses priority setting, use of judgment, and decision-making skills; application of the nursing process to the care of clients with physiological needs for oxygenation and maintaining fluid and electrolyte balance, and to the care of clients with special needs (such as having diagnostic tests and undergoing surgery); and principles of medication administration.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Care Management	38	50.7%
Relationship Skills	37	49.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Recognize the importance of providing culturally appropriate nursing care.
2. Select teaching-learning strategies appropriate for identified client/family situations.
3. Apply the nursing process to care of clients with sensory deficits, physiological needs for oxygenation, and those having diagnostic tests or treatments, or undergoing surgery, including maintaining fluid and electrolyte balance.
4. Identify principles of medication administration, including calculation of medication dosage.
5. Select priority for nursing intervention given client information and data.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Basic Nursing Care II	114	70.5%	72.7%	11.72	0.866	4.29

MENTAL HEALTH NURSING

Description of the test

The purpose of this test is to assess the baccalaureate student's knowledge and application of mental health concepts and care of clients who have mental health conditions. Content addresses theoretical frameworks of practice, behavioral adaptation, therapeutic modalities, and application of mental health and mental illness concepts. Relevant items are incorporated in nutrition and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Knowledge and Concepts	25	33.3%
Assessment, Analysis, and Evaluation	25	33.3%
Planning and Implementation	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Identify relevant concepts related to psychiatric nursing care, including confidentiality, legal aspects, and principles of psychiatric care.
2. Assess, analyze, and evaluate data related to psychiatric clients, including performing a mental status examination, selecting appropriate nursing diagnoses, and determining the effectiveness of interventions.
3. Plan and implement appropriate nursing care for psychiatric clients, including selecting therapeutic modalities and administering psychotropic medications.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Mental Health Nursing	174	51.9%	52.0%	5.44	0.454	4.02

NURSING CARE OF ADULTS I

Description of the test

The purpose of this test is to assess students' knowledge and application of nursing care of the adult client. Content addresses the nursing care of adult clients who have various health alterations, including cardiovascular, endocrine, gastrointestinal, musculoskeletal, renal, respiratory, fluid and electrolyte imbalances, infectious disease, and perioperative care.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Acute Care	25	33.3%
Chronic Care	25	33.3%
Health Promotion	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Recognize strategies that assist individuals and families to select lifestyle behaviors that promote an optimum level of health.
2. Identify factors that place individuals at risk for development of health alterations.
3. Identify resources available for early detection of illness.
4. Apply care management and relationship skills when caring for adults who have selected acute and chronic health deviations.
5. Select rehabilitative activities that promote independent living and support successful adaptation to altered states of health.
6. Recognize activities that support a dignified death in a caring environment for individuals who are terminally ill.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Nursing Care of Adults I	126	69.7%	73.3%	9.91	0.780	4.65

NURSING CARE OF ADULTS II

Description of the test

The purpose of this test is to assess students' knowledge and application of nursing care of the adult client. Content addresses the nursing care of adult clients who have various health alterations, including neurological, sensory, and complex cardiovascular and respiratory; nursing responsibility for patients who have trauma and burn injuries; and incorporates management, nutrition, and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Acute Care	25	33.3%
Chronic Care	25	33.3%
Care Management	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Recognize strategies that assist individuals and families to select lifestyle behaviors that promote an optimum level of health.
2. Identify factors that place individuals at risk for development of health alterations.
3. Identify resources available for early detection of illness.
4. Apply care management and relationship skills when caring for adults who have selected acute and chronic health deviations.
5. Select rehabilitative activities that promote independent living and support successful adaptation to altered states of health.
6. Recognize activities that support a dignified death in a caring environment for individuals who are terminally ill.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Nursing Care of Adults II	159	65.6%	68.0%	8.25	0.646	4.91

NURSING CARE OF CHILDREN

Description of the test

The purpose of this test is to assess knowledge and application of nursing management of children and their families across the health continuum. Content addresses the nurses' role in the delivery of community-centered, culturally competent care for children from infancy through adolescence and their families and includes aspects of nutrition, pharmacology, and interpersonal relationships; approaches to the care of the child and family that are consistent with current social, political and ethical norms; health issues of disabled children and their families; and the components of physiological and psychosocial growth and development, health promotion, acute and chronic health deviations, and the five steps of the nursing process.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Acute Health Deviations	25	33.3%
Chronic and Disabling Health Deviations	25	33.3%
Growth and Development/Health Promotion	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Identify normal physiological and psychological changes as well as deviations that occur during the growth and development of children and adolescents.
2. Use appropriate measures and practices to promote growth and development in children and adolescents.
3. Identify risk factors related to the development of acute, chronic, and disabling health deviations in children and adolescents.
4. Establish priority measures to be taken when acute as well as chronic and disabling health deviations occur in children and adolescents.
5. Identify principles and rationales for measures used in the care of children and adolescents.
6. Identify expected therapeutic effects of prescribed treatments for children and adolescents.
7. Develop age-appropriate teaching plans for children and their families.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Nursing Care of Children	144	66.0%	67.0%	8.84	0.708	4.77

NURSING CARE OF THE CHILDBEARING FAMILY

Description of the test

The purpose of this test is to assess understanding of nursing care of the childbearing family. Content addresses normal events of the childbearing experience; common health problems of mothers and infants; complications that occur in mothers and infants during the pregnancy cycle; and incorporates communication, nutrition, and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Antepartal Care	27	36.0%
Partal and Postpartal Care	25	33.3%
Fetus and Newborn	23	30.7%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Identify normal physiological and psychological changes, as well as deviations from normal, that occur to either the woman or her significant other during the pregnancy cycle.
2. Identify appropriate measures and practices used in the care of women throughout the antepartal, partal, post partal, and neonatal periods.
3. Establish priority measures to be taken when deviations from normal occur in the woman during the pregnancy of the neonate.
4. Select facts and principles that underlie practices and measures used in the care of the pregnant woman or the neonate.

5. Identify factors related to the development of complications throughout the pregnancy cycle and the neonatal period.
6. Identify factors related to the normal fetal growth and development of neonatal abnormalities.
7. Identify satisfactory or untoward effects of therapeutic measures used in the treatment of women throughout the pregnancy cycle.
8. Select strategies that would be therapeutic when relating to and teaching patients throughout the pregnancy cycle and the neonatal period. Psychometrics

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Nursing Care of Childbearing Family	133	66.4%	68.0%	9.73	0.739	4.97

PHARMACOLOGY IN CLINICAL NURSING

Description of the test

The purpose of this test is to measure students' knowledge and abilities to apply safe practice with drug therapy in a variety of health care settings. Content addresses medications that are prescribed in adult health, women's health, child health, and mental health; pharmacology; application and analysis of safe nursing practice for medication administration; principles of administration; pharmacological actions; therapeutic and undesired effects; and dosage calculations of specific medications.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Calculations	25	33.3%
Principles of Medication Administration	25	33.3%
Effects of Medications	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Accurately calculate medication dosages related to clinical situations.
2. Identify the application of accepted principles of medication administration.
3. Select approaches to client care that reflect an understanding of the therapeutic and adverse effects of medications.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Pharmacology in Clinical Nursing	106	65.6%	65.3%	7.25	0.605	4.56

PHYSICAL ASSESSMENT

Description of the test

The purpose of this test is to assess students' knowledge and application of general health assessment and physical examination techniques used to evaluate the health status of adults and children. Content addresses general health assessment in the areas of interviewing, health history taking, general surveying, and documentation using a body systems approach to evaluate physical data-gathering techniques. The health status and developmental stage of clients are also considered. The test reflects nurse-client encounters in a variety of primary, secondary, and tertiary health care settings and requires students to use their knowledge of the nursing process.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
General Health Assessment	38	50.7%
Physical Examination	37	49.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Apply general health assessment parameters in the areas of interviewing, health history taking, general surveying, and documentation.
2. Apply physical data-gathering techniques utilizing a body systems and developmental approach.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Physical Assessment	56	65.5%	67.3%	5.83	0.377	4.60

PRACTICAL NURSING

ADULT HEALTH NURSING

Description of the Test

The Adult Health Nursing exam is designed to measure students' knowledge and application of the care of adult clients with clinical disorders requiring medical or surgical intervention. Content addresses the care of adults of various ages who are experiencing common health problems and incorporates nutrition and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Basic Concepts of Adult Health Nursing	25	33.3%
Care of Adults with Acute Health Disorders	25	33.3%
Care of Adults with Long-Term Health Disorders	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Use the nursing process when providing care to adult clients who have acute or long-term alterations in health status.
2. Apply principles of health promotion, health maintenance, and health restoration in the care of adult clients.
3. Recognize the importance of developmental and sociocultural concepts in planning and providing care to adult clients.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Adult Health Nursing	184	68.9%	72.0%	11.71	0.845	4.62

CHILD HEALTH NURSING

Description of the Test

The Child Health Nursing exam is designed to measure students' knowledge and application of normal growth and development of the care of children. Content addresses the promotion of children's health; care of children of various ages who are experiencing common health problems; and incorporates communication, nutrition, and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Basic Concepts; Well Child	38	50.7%
Acute Care; Special Needs; Deviations from Health	37	49.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Use the nursing process when providing care to children who are well, have an acute or chronic illness, or special needs.
2. Recognize components of the psychosocial and emotional health of children from infancy through adolescence.
3. Recognize patterns of normal growth and development and age-related factors that affect the provision of care to children.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Child Health Nursing	103	65.9%	65.3%	6.72	0.51	4.71

MATERNITY INFANT NURSING

Description of the Test

The Maternity Infant Nursing exam is designed to assess students' knowledge and application of the care of clients during the childbearing cycle. Content addresses nursing measures used when caring for clients during pregnancy, labor and delivery, and the postpartum period; care of the newborn; and incorporates therapeutic communication, nutrition, and pharmacology.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Normal Maternity/Neonate	37	49.3%
High-Risk Mother/Neonate	38	50.7%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Use the nursing process when providing care to mothers throughout the childbearing cycle and to their neonates.
2. Apply principles of health promotion and health maintenance in the care of mothers and neonates throughout normal pregnancy.
3. Recognize factors that place mothers and infants at risk during the childbearing cycle and the care of mothers and neonates who experience complications of pregnancy and childbirth.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Maternity Infant Nursing	92	67.6%	69.3%	8.72	0.721	4.61

MENTAL HEALTH CONCEPTS

Description of the Test

The Mental Health Concepts exam assesses students' knowledge and application of principles of mental health and psychiatric nursing. Content addresses behavioral manifestations of well-being and stress exhibited by children and adults in a variety of settings and at various levels of wellness and selections of appropriate goals and interventions for patients and families experiencing illness or stress.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Behaviors and Concepts	37	49.3%
Nursing Interventions and Therapeutic Management	38	50.7%
Total	75	100%

The objectives of the test are to measure students' abilities to:
1. Recognize behavioral manifestations of well-being and actual or perceived stress.
2. Select appropriate nursing goals and interventions for clients and their families.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Mental Health Concepts	104	49.2%	49.3%	6.30	0.538	4.28

PHARMACOLOGY

Description of the Test

The PN Pharmacology test assesses students' knowledge and application of facts and principles related to medications and medication administration. Content addresses the calculation of medication dosages, interpretation of medication orders, and observation of the effects of commonly prescribed medications.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Calculations	25	33.3%
Principles of Drug Administratio	25	33.3%
Drug Effects	25	33.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Calculate medication dosages correctly.
2. Identify principles of drug administration.
3. Identify the therapeutic and side effects of commonly used medications.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Pharmacology	181	69.4%	70.7%	10.12	0.767	4.89

PN FUNDAMENTALS

Description of the Test

The PN Fundamentals exam is designed to measure students' knowledge and application of core content upon which practical nursing is based. Content addresses basic knowledge of physiological and special needs; selecting appropriate measures for providing safety and comfort to clients; and identification of psychosocial, developmental,

ethical, and legal aspects of nursing; and includes principles of therapeutic communication, nursing process, vital signs, and other basic nursing knowledge.

Test Content and Objectives

A high-level blueprint of the content areas and the number and percentage of items per area are provided in the chart below.

Content Area	Number of Items	Percent of Test Blueprint
Health Promotion	32	42.7%
Health Maintenance	24	32.0%
Health Restoration	19	25.3%
Total	75	100%

The objectives of the test are to measure students' abilities to:

1. Identify basic body structures and functions.
2. Distinguish between signs and symptoms.
3. Select appropriate measures for giving care to clients.
4. Recognize abbreviations and terms common to nursing.
5. Apply basic mathematical skills.
6. Identify normal vital signs.
7. Select the correct measure for the given procedure.
8. Identify the purpose of common procedures and measures.
9. Apply principles of aseptic technique.
10. Identify basic nutritional requirements.
11. Identify the purpose served by important nutrients.
12. Recognize sources of essential food elements.
13. Recognize methods of maintaining the nutritional value of food.
14. Identify basic principles of therapeutic communication.
15. Apply basic principles of therapeutic communication.

Psychometrics

The most recently updated test statistics based on the 2023 calendar year are shown in the table below. Reference the section, Test Statistics, for definitions of each statistic provided. Reliability is estimated using Cronbach's α.

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Fundamentals	187	62.7%	62.7%	8.47	0.719	4.49

APPENDIX A

Updated Exam Statistics for 2023
Addendum to Technical Manual

Key test statistics are reported for each exam to assist faculty in determining if the exam meets their requirements for the purpose(s) intended and to aid with the interpretation and use of scores. Statistics were updated based on students who completed the exam(s) during the 2023 calendar year. This group of students constitutes the 2023 operational norm group and is inclusive of all institutions offering LPN or RN programs that used the exam(s) during the calendar year. The following tables are provided to assist institutions in their use and interpretation of scores based on the most current data available. For an explanation of the test statistics provided, please refer to the Test Statistics section of this manual.

Test Statistics for Foundational Sciences Exams 2023

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
Anatomy and Physiology	70	61.7%	62.7%	12.37	0.869	4.48
Microbiology	32	61.3%	62.7%	13.10	0.897	4.20
Normal Nutrition	150	71.3%	73.3%	7.74	0.692	4.30

Test Statistics for RN Achievement Exams 2023

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
RN Basic Nursing Care I	129	73.4%	76.0%	9.15	0.776	4.33
RN Basic Nursing Care II	114	70.5%	72.7%	11.72	0.866	4.29
RN Mental Health Nursing	174	51.9%	52.0%	5.44	0.454	4.02
RN Nursing Care of Adults I	126	69.7%	73.3%	9.91	0.780	4.65
RN Nursing Care of Adults II	159	65.6%	68.0%	8.25	0.646	4.91
RN Nursing Care of Children	144	66.0%	67.0%	8.84	0.708	4.77
RN Nursing Care of Childbearing Family	133	66.4%	68.0%	9.73	0.739	4.97
RN Pharmacology in Clinical Nursing	106	65.6%	65.3%	7.25	0.605	4.56
RN Pharmacology	203	60.3%	62.7%	10.81	0.803	4.79
RN Physical Assessment	56	65.5%	67.3%	5.83	0.377	4.60

Test Statistics for PN Achievement Exams 2023

Exam	N	Mean	Median	Standard Deviation	Reliability	Standard Error of Measurement
PN Adult Health Nursing	184	68.9%	72.0%	11.71	0.845	4.62
PN Child Health Nursing	103	65.9%	65.3%	6.72	0.51	4.71
PN Maternity Infant Nursing	92	67.6%	69.3%	8.72	0.721	4.61
PN Mental Health Concepts	104	49.2%	49.3%	6.30	0.538	4.28
PN Pharmacology	181	69.4%	70.7%	10.12	0.767	4.89
PN Fundamentals	187	62.7%	62.7%	8.47	0.719	4.49

APPENDIX B

Updated Norm Tables for 2023
Addendum to Technical Manual

Percentile ranks offer Schools of Nursing the ability to compare the performance of their students with that of the 2023 operational norm group which represents students in other nursing programs across the United States that use the exam in their programs. Percentile ranks show the percentage of students scoring at or lower than a given score and are a reasonable method to compare the performance of a cohort to a norm group.

The following tables display percentile ranks comparing student performance on the RN and PN Achievement series to an operational norm group comprised of all examinees across multiple institutions who completed the exam between January 1, 2023, and December 31, 2023. These tables are provided as a convenience for Schools of Nursing that have used NLN percentile ranks in the past.

Foundational Science Exams

Anatomy and Physiology N = 70	
Percentile Rank	Percent Correct
1	1%
3	35%
6	36%
9	37%
11	39%
13	41%
14	44%
17	45%
19	47%
23	48%
24	49%
26	51%
29	52%
34	55%
36	56%
40	57%
41	59%
43	60%
49	61%
51	63%
56	64%
60	65%
63	67%
66	68%
67	69%
70	72%
76	73%
77	76%
80	77%
84	79%
91	80%
94	84%
96	85%
97	88%
100	89%

Microbiology N = 32	
Percentile Rank	Percent Correct
3	24%
9	29%
13	35%
16	45%
19	48%
31	49%
34	51%
38	52%
41	55%
44	59%
47	60%
53	63%
56	67%
59	68%
66	71%
75	75%
78	77%
84	79%
88	81%
94	83%
97	84%
100	85%

Normal Nutrition N = 150	
Percentile Rank	Percent Correct
1	39%
1	43%
2	44%
3	45%
5	48%
5	49%
6	51%
7	55%
11	56%
12	57%
13	59%
17	60%
21	63%
23	64%
25	65%
31	67%
34	68%
39	69%
43	71%
45	72%
51	73%
55	75%
63	76%
69	77%
76	79%
81	80%
88	81%
96	83%
97	84%
98	85%
99	87%
99	88%
100	89%

RN Achievement Exams

RN Basic Nursing Care I N=129	
Percentile Rank	**Percent Correct**
1	11%
2	37%
2	41%
3	43%
4	45%
5	49%
5	52%
7	53%
8	55%
9	56%
10	57%
12	60%
15	61%
16	63%
19	64%
23	65%
25	67%
26	68%
29	69%
30	71%
34	72%
41	73%
50	75%
55	76%
61	77%
66	79%
74	80%
77	81%
82	83%
85	84%
92	85%
95	87%
96	88%
98	89%
98	91%
99	92%
100	95%

RN Basic Nursing Care II N = 114	
Percentile Rank	**Percent Correct**
1	1%
2	4%
3	5%
4	19%
4	21%
6	55%
9	56%
11	57%
11	59%
12	60%
15	61%
16	63%
20	64%
25	65%
29	67%
35	68%
39	69%
46	71%
50	72%
55	73%
58	75%
62	76%
68	77%
73	79%
78	80%
83	81%
88	83%
91	84%
95	85%
97	87%
98	88%
99	91%
100	92%

RN Mental Health Nursing N = 174	
Percentile Rank	**Percent Correct**
1	12%
1	27%
2	32%
2	35%
3	37%
4	39%
6	40%
9	41%
10	43%
13	44%
17	45%
21	47%
28	48%
33	49%
40	51%
51	52%
61	53%
67	55%
74	56%
82	57%
90	59%
94	60%
95	61%
97	63%
99	64%
100	67%

Nursing Care of Adults I N = 126	
Percentile Rank	Percent Correct
1	15%
2	25%
2	31%
3	35%
4	39%
5	43%
7	48%
8	49%
9	51%
10	52%
12	53%
13	55%
13	56%
15	57%
19	59%
21	60%
24	61%
26	63%
28	64%
31	65%
33	67%
35	68%
37	69%
44	71%
48	72%
56	73%
62	75%
68	76%
73	77%
81	79%
86	80%
89	81%
90	83%
93	84%
94	85%
96	87%
98	88%
99	89%
100	93%

RN Nursing Care of Adults II N = 159	
Percentile Rank	Percent Correct
1	36%
3	39%
4	40%
6	41%
9	44%
10	45%
11	47%
12	51%
13	52%
15	53%
16	55%
18	57%
23	59%
28	60%
30	61%
33	63%
38	64%
43	65%
48	67%
55	68%
60	69%
65	71%
71	72%
77	73%
83	75%
87	76%
91	77%
94	79%
97	80%
99	81%
100	88%

RN Nursing Care of Children N = 144	
Percentile Rank	Percent Correct
1	24%
1	27%
2	33%
3	36%
3	40%
4	41%
5	44%
6	45%
6	47%
8	48%
9	49%
10	51%
12	52%
13	53%
15	55%
18	56%
21	57%
24	59%
26	60%
31	61%
33	63%
41	64%
47	65%
53	67%
56	68%
58	69%
66	71%
72	72%
76	73%
80	75%
83	76%
88	77%
90	79%
92	80%
94	81%
96	83%
97	84%
98	87%
99	88%
99	91%
100	93%

RN Nursing Care of Childbearing Family N = 133	
Percentile Rank	Percent Correct
1	27%
2	29%
2	33%
4	37%
5	39%
6	40%
7	41%
8	43%
9	45%
10	48%
12	51%
14	52%
15	53%
19	56%
23	57%
25	59%
28	60%
32	61%
35	63%
41	64%
44	65%
49	67%
51	68%
58	69%
63	71%
68	73%
76	75%
77	76%
80	77%
84	79%
86	80%
92	81%
94	83%
95	84%
98	85%
99	87%
100	93%

RN Pharmacology in Clinical Nursing N = 106	
Percentile Rank	Percent Correct
1	35%
2	39%
3	43%
4	48%
5	52%
7	53%
11	55%
14	56%
23	57%
28	59%
35	60%
39	61%
44	63%
47	64%
53	65%
58	67%
61	68%
68	69%
69	71%
70	72%
75	73%
81	75%
85	76%
91	77%
92	79%
96	80%
98	81%
99	83%
100	85%

RN Pharmacology N = 203	
Percentile Rank	Percent Correct
0	3%
1	19%
1	23%
2	27%
2	28%
3	29%
4	31%
5	32%
6	33%
7	35%
8	36%
9	37%
11	39%
11	40%
12	41%
14	43%
15	44%
18	45%
19	47%
19	48%
21	49%
22	51%
23	52%
26	53%
29	55%
33	56%
36	57%
41	59%
46	60%
48	61%
53	63%
57	64%
62	65%
64	67%
68	68%
70	69%
76	71%
80	72%
84	73%
87	75%
92	76%
92	77%
95	79%
97	80%
98	81%
99	83%
100	85%

RN Physical Assessment N = 56	
Percentile Rank	Percent Correct
2	43%
4	51%
7	52%
9	53%
14	55%
20	56%
21	59%
23	60%
30	63%
39	64%
45	65%
50	67%
66	68%
75	69%
77	71%
88	72%
89	73%
93	76%
98	77%
100	80%

PN Achievement Exams

PN Adult Health Nursing N=184	
Percentile Rank	**Percent Correct**
1	0%
2	1%
2	7%
3	27%
3	39%
4	40%
5	43%
5	44%
6	45%
7	47%
8	48%
8	49%
9	52%
11	53%
14	55%
15	56%
18	57%
20	59%
23	60%
26	61%
30	63%
33	64%
35	65%
37	67%
42	68%
45	69%
49	71%
53	72%
58	73%
61	75%
65	76%
69	77%
74	79%
79	80%
80	81%
88	83%
89	84%
91	85%
95	87%
98	88%

Maternity Infant Nursing N = 92	
Percentile Rank	**Percent Correct**
1	23%
3	43%
4	48%
5	49%
7	52%
9	53%
12	55%
18	56%
22	57%
27	59%
32	60%
33	61%
37	63%
41	64%
43	65%
48	67%
49	68%
55	69%
58	71%
61	72%
66	73%
71	76%
75	77%
82	79%
87	80%
93	81%
96	83%
98	84%
99	85%
100	87%

PN Child Health Nursing N = 103	
Percentile Rank	**Percent Correct**
1	35%
2	45%
3	48%
5	51%
8	53%
9	55%
15	56%
17	57%
24	59%
26	60%
33	61%
35	63%
43	64%
51	65%
61	67%
64	68%
71	69%
75	71%
77	72%
82	73%
84	75%
87	76%
89	77%
94	79%
95	80%
96	81%
98	83%
99	84%
100	88%

PN Mental Health Concepts N = 104	
Percentile Rank	Percent Correct
1	27%
2	31%
3	32%
5	33%
6	35%
7	36%
9	37%
12	40%
17	41%
21	43%
28	44%
36	45%
42	47%
48	48%
56	49%
63	51%
65	52%
73	53%
80	55%
84	56%
87	57%
88	59%
92	60%
95	61%
96	64%
97	65%
98	68%
99	71%
100	75%

PN Fundamentals N = 187	
Percentile Rank	Percent Correct
1	7%
1	35%
2	39%
3	40%
4	43%
4	44%
5	45%
7	47%
10	48%
11	49%
14	51%
17	52%
19	53%
24	55%
27	56%
34	57%
35	59%
42	60%
49	61%
55	63%
57	64%
61	65%
65	67%
71	68%
75	69%
78	71%
81	72%
84	73%
88	75%
89	76%
91	77%
94	79%
95	80%
96	81%
97	83%
98	84%
99	85%
100	87%

APPENDIX C

An example of a Coaching Report for the Microbiology exam is provided. The report shows the percentage correct for a given test (Assessment Total) and for each of the content areas within the test (e.g., Epidemiology, Immunology, and Microorganisms). Along with the student's score, the average percentage correct (Avg Score) for the total test and content areas is provided and represents the average percentage correct based on all examinees who have the test at the time the report is generated. The number of results in the comparison set for this exam at the time the report was run was 158. The average continues to refresh as more examinees complete the test.

National League for Nursing

NLN Student Score Report

Participant first name		Date/time finished	Dec 26 2022 11:58:15
Participant last name		Status	Finished
Participant ID		Total score	43
Participant group		Percentage score	58%
Assessment name	Microbiology	Time taken	00:22:25

Comparisons

Description	Your Scores
Number of results in comparison set: 158	

Disclosure

Comparison	%
▼ Participant	0%
▲ Avg score	100%

MICROBIOLOGY\Epidemiology

Comparison	%
▼ Participant	56%
▲ Avg score	68%

MICROBIOLOGY\Immunology

Comparison	%
▼ Participant	56%
▲ Avg score	63%

MICROBIOLOGY\Microorganisms

Comparison	%
▼ Participant	62%
▲ Avg score	60%

Assessment total

Comparison	%
▼ Participant	55%
▲ Avg score	63%