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2021

TECHNICAL HANDBOOK

EXCELSIOR COLLEGE®

UExcel Credits Awarded

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The following table provides a list of exams, including exam number, exam title, catalog number (in parentheses following exam title), credits awarded, and exam level. For the catalog number, the three-letter alpha code represents the department followed by the three-digit catalog number. The x is an internal code indicating that it represents an examination and not a course. **U:** Upper-level credit **L:** Lower-level credit

EXAM #	EXAMINATION (CATALOG NUMBER)	CREDITS	LEVEL
459	Abnormal Psychology (PSYx310)	3	U
554	Adult Nursing (NURx310)	8	U
506	Anatomy & Physiology (BIOx210)	6	L
104	Anatomy & Physiology I (BIOx104)	3	L
106	Anatomy & Physiology II (BIOx106)	3	L
250	Basic Genetics (BIOx250)	3	L
359	Bioethics: Philosophical Issues (HUMx310)	3	U
323	Business Ethics (BUSx323)	3	U
221	Business Information Systems (BUSx221)	3	L
255	Business Law (BUSx230)	3	L
150	Calculus (MATx150)	4	L
110	College Writing (ENGx110)	3	L
100	Contemporary Mathematics (MATx100)	3	L
545	Cultural Diversity (SOCx305)	3	U
360	Earth Science (GEOx101)	3	L
434	English Composition (ENGx111)	6	L
484	Ethics: Theory & Practice (PHIx310, BUSx310)	3	U
253	Financial Accounting (ACCx211)	3	L
407	Foundations of Gerontology (HSCx310; SOCx310)	3	U
403	Fundamentals of Nursing (NURx210)	8	L
107	General Chemistry I (CHEx101)	3	L
351	Human Resource Management (BUSx410, HSCx410)	3	U
417	Interpersonal Communication (COMx215)	3	L
190	Introduction to Computer Programming Using Java (ITEx210)	3	L
258	Introduction to Macroeconomics (ECOx262)	3	L
257	Introduction to Microeconomics (ECOx260)	3	L
362	Introduction to Music (MUSx101)	3	L
363	Introduction to Philosophy (PHIx101)	3	L
101	Introduction to Psychology (PSYx101)	3	L
105	Introduction to Sociology (SOCx105)	3	L
364	Juvenile Delinquency (SOCx320)	3	U
352	Labor Relations (BUSx360)	3	U
583	Life Span Developmental Psychology (PSYx210)	3	L

EXAM #	EXAMINATION (CATALOG NUMBER)	CREDITS	LEVEL
565	Literacy Instruction in the Elementary School (EDUx310)	6	U
254	Managerial Accounting (ACCx212)	3	L
457	Maternal & Child Nursing (baccalaureate) (NURx315)	8	U
558	Microbiology (BIOx220)	3	L
420	Operations Management (BUSx425)	3	U
353	Organizational Behavior (SSCx315, BUSx315)	3	U
354	Pathophysiology (BIOx410)	3	U
140	Physics (PHYx140)	6	L
170	Political Science (POLx170)	3	L
116	Precalculus Algebra (MATx116)	3	L
350	Principles of Finance (BUSx350)	3	U
251	Principles of Management (BUSx240)	3	L
252	Principles of Marketing (BUSx250)	3	L
503	Psychiatric/Mental Health Nursing (NURx320)	8	U
355	Psychology of Adulthood & Aging (PSYx315, HSCx315)	3	U
437	Quantitative Analysis (BUSx437)	3	U
356	Research Methods in Psychology (PSYx365)	3	U
259	Science of Nutrition (SCIx259)	3	L
357	Social Psychology (PSYx325)	3	U
102	Spanish Language (SPAx102)	6	L
210	Statistics (MATx210)	3	L
171	Weather and Climate (PHYx120)	3	L
256	Workplace Communication with Computers (BUSx220)	3	L
367	World Conflicts Since 1900 (HISx340)	3	U
358	World Population (SOCx330)	3	U

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Introduction

About This Handbook

The *UExcel Technical Handbook* provides the latest available technical and psychometric information about the current forms of the UExcel examinations administered by Excelsior College. This technical handbook is designed to assist college faculty members, administrators, admissions officers, student advisors, testing directors, and other test users in evaluating the test results of these examinations and in setting credit-by-examination policies.

As of July 2021, the group of exams known as Excelsior College Exams (8 nursing theory exams) is no longer administered. If any psychometric information is needed for those exams it can be obtained by contacting the Center for Educational Measurement at the contact information provided below.

The *Handbook* outlines the test content specifications for each examination listed by examination title and three-digit examination number. (The number represents the code that is used by Excelsior's systems.) These specifications list the content areas covered by the examination and the percentage of items that are allocated to each content area. The psychometric properties of each examination are also described in this handbook. Statistics used to describe these psychometric properties are based on the performance of examinees who have taken the examinations for credit.

Analyses of these statistical results are based on the administration of two of the current forms of an examination as a representative sample. Depending on when the examination forms were first introduced, the results may reflect administration dates that span more than one year.

The Handbook is updated annually and reflects the latest available information for existing examinations and any new examinations introduced this year.

The UExcel examinations are produced by the Center For Educational Measurement UExcel exams are available to anyone interested in taking an examination for college credit. Psychometric information for UExcel exams can be found in this handbook.

For more specific exam content information, see the exam content guides that can be found at **www.excelsior.edu/exams/content-guides** for the UExcel program.

Excelsior College History

Excelsior College was founded in 1971 by the New York State Board of Regents, and the Excelsior College Examinations program was originally known as the Regents External Degree Program (REX). Initial development of the College was funded by major grants from the Ford Foundation and the Carnegie Corporation. From 1971 until 1998, Regents College (as it became known in 1986) operated as a program of the Board of Regents (which also served as its board of trustees) and under the authority of The University of the State of New York by which degrees and diplomas were awarded during that period.

In April 1998, the Board of Regents granted the College a charter to operate as a private, not-for-profit, independent institution and on January 1, 2001, Regents College changed its name to Excelsior College. Today, an independent board of trustees governs Excelsior College and it is composed of prominent individuals in the fields of education, business, and the professions from across the United States.

Excelsior College's Mission

Excelsior College provides educational opportunity to adult learners with an emphasis on those historically underrepresented in higher education. The College meets students where they are — academically and geographically, offering quality instruction and the assessment of learning.

Recognizing that college-level knowledge can be obtained in many ways, Excelsior provides various options to earning college credit. Undergraduate credits are earned through a variety of educational offerings, including Excelsior's own online courses and credit-bearing exams and courses (both online and campus-based) from other colleges and universities, and from recognized college-level sources such as military and corporate training programs. Excelsior's graduate programs are delivered online. Through these means, the College makes associate, baccalaureate, and master's degrees more accessible to busy, working adults.

More than 16,300 adult learners are currently pursuing their associate, bachelor's, or master's degrees. In all, Excelsior College has more than 187,000 graduates throughout the world.

About the Center for Educational Measurement

The mission of the Center for Educational Measurement is to provide assessments of student learning, and to develop and conduct assessment literacy initiatives. The Center offers evaluation and assessment options that are sound, cost-effective, accessible, and responsive to the needs of currently enrolled students, potential students, and the Excelsior College community, providing a flexible approach to degree completion and supporting a core value of putting students first.

The Center is committed to identifying assessment needs, implementing comprehensive solutions, training Excelsior faculty and staff in assessment methodology, and conducting educational measurement research.

Accreditations and Approvals

Excelsior College and UExcel Exam Transcripts

The UExcel Examinations are transcripted as Excelsior College Credit directly. UExcel exams are not challenge exams for Excelsior College courses, but rather, are stand-alone credit alternatives.

Institutional Accreditation

Excelsior College is accredited by the **Middle States Commission on Higher Education**, 3624 Market Street, Philadelphia, PA 19104. (267-284-5000). The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation (CHEA).

All of Excelsior College's academic programs are registered (that is, approved) by the **New York State Education Department**.

Specialized Nursing Accreditation

The RN to BS in Nursing and master's degree programs in nursing at Excelsior College are accredited by the **Accreditation Commission for Education in Nursing (ACEN)**. ACEN is a specialized accrediting agency for nursing recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation (CHEA).

Accreditation Commission for
Education in Nursing (ACEN)
3343 Peachtree Road NE, Suite 850
Atlanta, GA 30326
404-975-5000

New York State Board of Regents – Recognized Programmatic Accreditation

Excelsior College's nursing programs are programmatically accredited by the New York State (NYS) Board of Regents, State Education Department Office of the Professions (the Regents). The U.S. Department of Education has recognized the Regents as a state agency for the approval of nursing education programs since 1969.

Specialized Accreditation for Technology Degrees

The Bachelor of Science in Electrical Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, **www.abet.org.**

The Bachelor of Science in Nuclear Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, **www.abet.org.**

The Bachelor of Science in Information Technology is accredited by the Computing Accreditation Commission of ABET, **www.abet.org.**

ABET is a specialized accrediting agency recognized by the Council for Higher Education Accreditation (CHEA).

Specialized Accreditation for Business Degrees

Excelsior College has received specialized accreditation for its business programs through the **International Assembly for Collegiate Business Education (IACBE) https://iacbe.org,** 11374 Strang Line Rd., Lenexa, KS 66215. The business programs in the following degrees are accredited by the IACBE:

Bachelor of Science in Business with concentrations in:

- Accounting
- Finance
- General Business
- Logistics Management
- Management of Human Resources
- Marketing

Master of Business Administration (MBA) with concentrations in:

- General Track (no concentration)
- Cybersecurity Management
- Health Care Management
- Human Performance Technology
- Human Resource Management
- Leadership
- Social Media Management
- Technology Management

Recognition

Cybersecurity Programs

The National Security Agency (NSA) and the Department of Homeland Security have designated Excelsior as a National Center of Academic Excellence in Cyber Defense Education, a recognition which extends through 2024.

Examination Development Procedures

Because UExcel Examinations are used as direct sources of college credit, it is important to ensure that the exams are developed and maintained according to good practice for high-stakes examinations.

There are five major stages in the development of each UExcel Examination: (1) developing a test plan; (2) writing and editing items, or questions; (3) evaluating, pretesting, and revising items; (4) assembling test forms; and (5) standard setting.

The Center for Educational Measurement follows these test development processes for all UExcel exams. The committee members and item writers are teaching faculty and practicing professionals in the United States. Excelsior College staff oversee the technical aspects of test construction in accord with current professional standards.

Developing Test Plans

A committee of faculty establishes the learning outcomes and content for each examination. This examination committee identifies the major content areas to be tested and specifies the proportion of the examination that falls in each content area. A detailed outline of each content area is also developed. The resulting test plan includes the test learning outcomes and test specifications for each content area. The test plan is the principal guide used in subsequent stages of the test development process and is periodically reviewed and revised to ensure that it reflects current developments in each content area.

Writing and Editing Items

After the test plan has been developed, item writers are recruited and selected based on their expertise and current teaching status. These item writers represent a broad spectrum of colleges and universities across the United States. After item writers write the test items according to the item writing guidelines, test development specialists review the items to identify and correct any technical, content, or editorial flaws. The pool of items is then presented to the faculty committee for a content review. The committee deletes or revises items that do not adequately match the outcomes and content specifications of the examination. The result of this stage is a pool of potential items that is ready for pretesting.

Evaluating, Pretesting, and Revising Items

Potential scorable examination items are pretested by including them as non-scorable items on regularly administered examination forms. Statistical analyses of item properties are then conducted. Poorly performing items are again reviewed and refined by the faculty committee, with the help of statistical information provided by the administrations. Items that have acceptable statistical properties are added to the available pool of items that may be counted toward an examinee's score.

Assembling Test Forms

The procedure for assembling examination forms is a two-phase process.

The first phase of this process consists of selecting items to be counted towards the score, based again on their psychometric properties such as item difficulty, discrimination, and item information, in proportion to the content specifications. Two parallel forms of scored items are created by selecting pairs of items with relatively equivalent psychometric properties and assigning one item from each pair to different forms. In addition, psychometricians, with the help of content specialists, choose a subset of link items common to both forms. These link items represent a mini-test, in both content and psychometric properties. A set of unscored pretest items is also selected for each form, in the same proportions specified in the content specification.

In the second phase of the form assembly process, technically trained assessment editors read each test form thoroughly, and examine the items selected for a form as a whole. The purpose of this step is to identify potential problems with item interaction. One such example is clueing, where one question contains content that an examinee could use to answer another question, without really knowing the content. Another is overlap, where items potentially test the same content twice. Yet a third potential problem is bias-free language usage.

Standard Setting

In the last stage before assembled forms are published for administration, a group of faculty subject matter experts (SMEs) convene to set the cut-scores for each letter-grade threshold level, in a two-day standard-setting meeting held at Excelsior College or online. Note that the score ranges corresponding to letter grades are different across exams and also across different forms of the same exam. For more details about the standard-setting process, see the section on "Setting Standards for Passing and Other Grade Levels" later in this section.

Examination Administration and Scoring Procedures

Excelsior College maintains strict examination security practices to ensure the validity of examination results. Examinations are administered by computer in random delivery order, under carefully standardized and secure testing conditions at Pearson VUE Testing Centers located throughout the United States, its territories, Canada, and at other locations around the globe. These conditions reflect the state-of-the-art in test center administration procedures, and include the use of biometrics.

Multiple-choice examinations are computer-scored with an objective scoring key. A raw score is then determined using either item response theory (IRT) or classical test theory (CTT) methods, depending upon exam volumes. For most examinations scored using CTT methods, raw scores are converted to percent scores. For the Maternal and Child Nursing, Baccalaureate (457) exam, raw scores are transformed linearly to a standard score distribution with a population mean of 50 and standard deviation of 10. Extended response (essay) examinations are scored via aggregated ratings from trained faculty SMEs and are converted to percentage of the total points earned. The specific scoring procedure used for each examination is noted in this *Handbook*.

Numerical scores (IRT theta θ values; CTT percentage or standard scores) are converted to letter grades as determined by the cut-scores set by the standard-setting committee. See "Setting Standards for Passing and Other Grade Levels" later in this section for more information about how the scoring process is conducted.

Score Reporting

For most of our examinations, based on performance, an examinee is awarded a letter grade of A, B, C, or F. A letter grade of D is given only for the 6 credit, upper level, English Composition exam, but credit is awarded for A, B, and C letter grades only. The letter grades reported to examinees indicate that their performance was equivalent to the performance of students who received the same letter grade in a comparable, on-campus course in the same subject.

More specifically, the letter grade indicates the examinee's proficiency relative to the learning outcomes specified in the exam content guide. Following are general descriptions of examinee performance at each level:

Letter Grade Description

A Highly Competent: Examinee's performance demonstrates an advanced level of knowledge and skill, relative to the learning outcomes.

B Competent: Examinee's performance demonstrates a good level of knowledge and skill , relative to the learning outcomes.

C Marginally Competent: Examinee's performance demonstrates a satisfactory level of knowledge and skill relative to the learning outcomes.

F Fail (no credit recommended): Examinee's performance demonstrates no knowledge of the content and no skill in the subject relative to the learning outcomes.

Credit is transcripted by Excelsior College for examinees who achieve letter grades of C or higher. Colleges and institutions seeking to establish a local credit recommendation standard should contact Jiten Pradhan, Director of Psychometrics, Center for Educational Measurement, Excelsior College (Jpradhan@excelsior.edu or 518-464-8731) for assistance.

We encourage colleges and universities to use the Excelsior College letter grades of A, B, and C as acceptable standards for awarding credit.

Setting Standards for Passing and Other Grade Levels

Excelsior College uses expert-based methodologies to set standards for grading on examinations under the direction of testing professionals in the Center for Educational Measurement. These methodologies are variations of the Angoff method commonly used by testing institutions to set standards for high-stakes examinations, such as licensing and certification examinations. A modified Angoff (1971) method is used for the multiple choice examinations, and an optimized extended response method is used for extended-response examinations. Both methods share the same principles as described below, with variations that accommodate the scoring scale.

Excelsior College selects faculty SMEs to participate in standard setting for a particular examination based on their disciplinary expertise and experience teaching the subject matter. SMEs discuss the typical performance of examinees at each competency category as it relates to the learning outcomes. These categories correspond to the letter grades (A—Highly Competent, B—Competent, C—Marginally Competent, F—Fail). They then arrive at a consensus of the

knowledge, skills and abilities expected of the borderline examinees in each performance category. With these definitions in mind, SMEs evaluate each item on the exam and estimate its difficulty as the probability of successful responses for borderline examinees in each of the categories.

The modified Angoff and the optimized extended response standard-setting methods differ only in the types of probabilities that the SMEs are asked to estimate. Multiple-choice questions require SMEs to estimate the proportion of examinees in the given competency category who would be able to answer each item correctly. Extended response questions require that SMEs estimate the proportion of examinees who would fall on each point on the rating scale. The probability distributions resulting from this procedure are used to set the cut-scores for each examination by averaging the experts' ratings across items, at each competency level for both methods.

It is important for those institutions and individuals using the grades and scores to understand that the letter grade is the best indicator of examinee proficiency. Because this methodology depends on expert judgment of the difficulty of each individual item, the particular cut-scores for any given grade (competency level) will be higher if the items on a form as a whole are relatively easy, and lower if the items on a form as a whole are relatively difficult. In other words, there is no prior expectation that the cut-score for a C, for example, will correspond to any particular numerical score. Different forms and exams may vary widely in what that cut-score is. Any individual wishing to consider numerical scores would need additional data to make informed judgments in this respect, and are encouraged to contact the Center for Educational Measurement for additional information.

Definitions of Psychometric Concepts

Validity

According to the *Standards for Educational and Psychological Testing* (2014), "validity refers to the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests."

Interpretation of UExcel scores

Examinees' performance on UExcels are reported as letter grades. The score scale is divided into four bands represented by the letter grades A, B, C, and F and the level of performance generally corresponds to performance on an equivalent college-level course. The overall interpretation of test scores is that the score represents a certain level of performance depending on which grade level it falls into. The levels of performance are categorized as A = Highly Competent; B = Competent; C = Marginally Competent; F = Fail.

Uses of UExcel letter grades

The letter grades are used to make lower or upper-level credit/no-credit awarding determinations at accredited colleges and universities in the United States.

Excelsior College grants credit for letter grades of A, B, and C. Other accredited colleges and universities should treat this credit as they would any transfer credit from a regionally accredited college.

Evaluation of the interpretation and use of scores

A source of evidence supporting the appropriateness of the interpretation and use of UExcel scores lies in the process with which UExcel are constructed. The process is designed to create an exam representing an equivalent college level course (please see the section on "Exam Development Process"). College-level instructors in the specific subject areas are involved in all stages of test development to ensure that the content of the test is relevant and measures the essential knowledge and skills, with adequate breadth and depth, in the discipline. Known in the testing industry as a subject matter expert, a SME is a faculty member with relevant and current pedagogical theory and practice in their fields. SMEs oversee the development of test specifications, the writing of test items, and the design of scoring rubrics for extended response tests. When test forms undergo assembly, items are selected in accordance with the test specifications

set forth by these faculty member SMEs during the initial stages of test development. This method of examination construction ensures that the exam shares equivalency with a corresponding college-level course.

We recognize that there is no national standard of what a letter grade of A or B or C means. To award letter grades that are meaningful, the score grade levels for the different levels of performance are defined by cut-off scores, for a four-point scale, at each of the A, B, C, and F grade levels, the grade levels obtained through a process called standard setting. The specific method employed is the Angoff method (please see section on Standard Setting). The credit/no-credit decision is also embedded in the definition of the letter grades when SMEs derive the cut-off scores during standard setting. This process is thorough and takes into account the difficulty of every item on the test form.

The intended use of UExcel letter grades is primarily for the awarding of college credit towards completion of a degree. By passing a UExcel exam, examinees are awarded college credit by Excelsior College, which they can have transferred to a college or university of their choice. Prior to registering for an exam, Excelsior advisors encourage the examinee to check with the policy on the transfer of credit-by-exam at the college or university where they wish the credit to be transferred. (Most institutions will post credit-by-exam transfer information on their website.)

In this use, a UExcel passing letter grade of C is interpreted as evidence that the examinee has acquired adequate knowledge in the subject matter to continue progress towards a college degree (such as in a general education requirement). A letter grade of A or B is interpreted to mean that the examinee has acquired sufficient knowledge and skills to continue studying that subject at the next level.

Another source of evidence supporting the appropriateness of the interpretation and use of the letter grades for UExcel is the psychometric information provided for each individual examination in this *Handbook*. The measure of the reliability of the test scores is provided by Cronbach's alpha, a statistic that measures internal consistency in an exam form. Cronbach's alpha is affected by several factors including test length (other things being equal, shorter tests will have lower values), group heterogeneity, and item quality. Cronbach's alpha provides a measure of the overall internal consistency of the items; that is, the extent to which the items are measuring one construct.

Interpretation of content validity for the various uses and purpose of the exam scores may be further aided by using the free content guides, available for each UExcel on the College's website at **www.excelsior.edu/exams.**

Main Concepts for Item Response Theory (IRT)

Some of the UExcel Examinations are developed and scored using procedures based in IRT. This section outlines and defines the main concepts of IRT related to the psychometric results presented in this handbook. These IRT results are based on the performance of all examinees taking these items on past operational forms of UExcel Examinations. Additional information and references for a more extensive coverage of IRT concepts are in the Technical Appendix.

- **Ability Estimate:** In IRT, it is assumed that an examinee has an underlying ability (θ) or proficiency level that determines their probability of answering an item correctly. Items can be classified in terms of these probabilities, so that it is possible to determine approximately which level of ability is required in order for the examinee to answer the item correctly. By administering items that vary in such probabilities on a form, an examinee's pattern of responses to these items can be used to estimate their ability level. The purpose of the proficiency test is to estimate the ability level for each examinee, so that the ability estimates become the scores that are assigned to the examinees.
- **Standard Error of Ability Estimates:** The standard error of an ability estimate is an index of the precision of the ability estimate. More precise ability estimates (that is, those with relatively smaller standard errors are closer to their corresponding true values of ability (θ). Standard errors of estimates can be determined for each individual item and for the test as a whole. In addition, they can be determined at different levels of ability.
- **Item and Test Information:** IRT extends the concept of reliability beyond a single index to information function, which varies with item difficulty, discrimination, and guessing. Item information functions display the contribution that an individual item makes to ability estimation at different points along the ability (θ) continuum. The test information function aggregates the individual item information functions to determine how much statistical information the test as a whole provides at each level of ability. In other words, this information shows how well the test as a whole discriminates between examinees at different ability levels.
- **Derivation of Pass/Fail Standards:** Current grading standards for examinations evaluated using IRT are ability (θ) cut-scores. The proportion-correct cut-scores obtained from standard setting are then converted to theta (θ) cut-scores, using the test characteristic curve.

Main Concepts for Classical Test Theory (CTT)

Due to the complexity of the statistical procedures underlying IRT, large volumes of test takers are required to adequately conduct IRT analysis. While CTT can be useful even when using IRT methods, in cases where sample sizes are inadequate, CTT is used exclusively. This section defines the main concepts of CTT related to the psychometric information provided in this handbook. Some CTT indices are provided in this handbook for examinations scored with IRT, to further describe our assessment methods. CTT results are based on the performance of only those examinees taking these items on the current operational forms of these tests. All extended response examinations are scored using CTT methods. Additional information and references for more extensive coverage of CTT can be found in the Technical Appendix.

- **True Score:** In CTT, examinees are assigned scores based on the number (or percentage) of correct responses to a set of dichotomously scored items. An examinee's number-correct score on the test is an unbiased estimate of their true score. The true score is conceptually the same as the ability estimate (θ) in IRT; however, unlike the ability estimate, the true score is inseparable from the specific items chosen for the test.
- **Reliability:** In CTT, the observed test score for any given examinee contains two components: (1) the examinee's true score as defined above, and (2) random error. Random error is most often defined as the degree of internal inconsistency among the items in the test. Conversely, reliability is typically defined in terms of the internal consistency of the items. The concept of test reliability in CTT hinges on the average amount of error a test has in estimating true scores.

Two strategies for evaluating reliability are the computation of reliability coefficients and standard errors of measurement. Several methods exist for computing reliability coefficients, depending on the type of test and the purpose of testing. Reliability coefficients are generally ratios that indicate, across examinees, the proportion of the total variability in their observed test scores that is due to true differences in their knowledge of the content being tested, (as opposed to random error). Reliability coefficients can range from .00 to 1.00, where a coefficient of 1.00 indicates perfectly reliable and precise measurement of true scores.

Standard errors of measurement are a direct function of unreliability. The standard error of measurement represents the average amount of random error involved, across all examinees, when using the score they receive on a given test as estimates of their true score. Lower standard errors of measurement, therefore, indicate a higher degree of reliability and measurement precision.

- **Item Difficulty:** The difficulty of an item is defined in CTT as the proportion of examinees who answer the item correctly. If few examinees answer the item correctly, it is assumed to be difficult. If most examinees answer the item correctly, it is assumed to be easy.
- **Item-Total Correlations:** Item-total correlations are a measure of item discrimination. In other words, they index the degree to which an item discriminates between those examinees who know the subject matter being tested and those who do not. An examinee's total score on the test is used as the index of their knowledge level. A strong positive correlation between an item and the total score indicates that examinees with high proficiency are answering the item correctly, while a near-zero correlation indicates that the item does not discriminate between high-proficiency test takers and low-proficiency test takers. In this handbook, all item-total correlations are point-biserial correlations that have been corrected for inflation, due to the item being included in the total score.
- **Derivation of Pass/Fail Standards:** Grading standards for most examinations currently evaluated using CTT have been set using the expert judgement of faculty subject matter experts (SMEs). For some examinations, grading standards are norm-referenced, based on normative data from campuses across the country. For more information regarding the psychometric and statistical data in this handbook, please contact Jiten Pradhan, Director of Psychometric Services, at jpradhan@excelsior.edu.

PSYCHOMETRIC INFORMATION FOR UEXCEL EXAMINATIONS IN

Arts & Sciences

ABNORMAL PSYCHOLOGY (459)

The Abnormal Psychology examination is based on material that corresponds to a one-semester, three-credit, upper-level course in abnormal psychology at the undergraduate level. The examination requires a knowledge of concepts typically learned in an introductory psychology course. The examination tests for knowledge and understanding of the historical background of abnormal psychology, the major conceptualizations in the field, and the nature and description of psychological disorders as well as their definitions, classifications, etiology, and major treatments.

Description of the Examination

The Abnormal Psychology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction and Basic Issues	25
II. Disorders	60
III. Treatment, Prevention, and Legal Issues	15

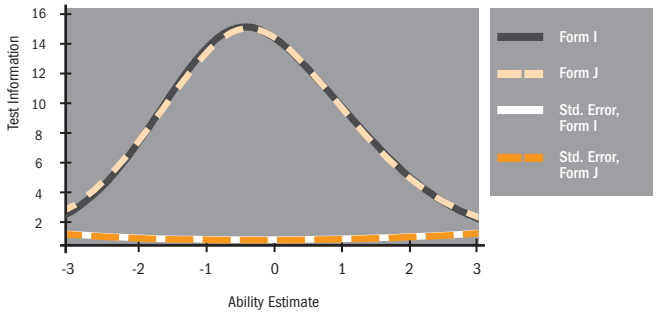
The Abnormal Psychology examination is developed, scored, and evaluated using IRT methods of analysis. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Abnormal Psychology examination contains a total of 130 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of Abnormal Psychology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of May 18, 2015 to August 31, 2021.

Test Information Functions for Alternate Forms

Abnormal Psychology (459)



SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ABNORMAL PSYCHOLOGY EXAMINATION		
	EXAMINATION FORM	
	I	J
Number of examinees	157	184
Number of items	130	130
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.74	.74
Average item-total correlation (point-biserial)	.30	.31
Proportion of item-total correlations less than .15	.07	.02
Internal consistency (KR20)	.90	.91

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE		
GRADE	FORM I	FORM J
	%	%
A	33	30
B	29	34
C	27	24
F	10	12

ANATOMY & PHYSIOLOGY (506)

The Anatomy & Physiology examination is based on material that corresponds to a six-credit, lower-level, introductory, two-semester sequence of courses in anatomy and physiology at the undergraduate level. It measures knowledge and understanding of the integrative mechanisms that contribute to the functioning of the human body. A familiarity with basic terms of biology and with concepts such as basic cell structure and function is required.

Description of the Examination

The Anatomy & Physiology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Human Body: An Overview	5
II. Chemical Basis of Life	5
III. Dynamics of Support and Motion	12
IV. Integration and Regulatory Mechanisms	23
V. Maintenance of the Human Body	33
VI. Urinary System	10
VII. Fluid and Electrolyte Balance	5
VIII. Reproduction and Development	7

The Anatomy & Physiology examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Anatomy & Physiology examination contains a total of approximately 119 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of Anatomy and Physiology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of May 14, 2020 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ANATOMY & PHYSIOLOGY EXAMINATION

	EXAMINATION FORM	
	N	O
Number of examinees	234	242
Number of items	119	119
Average of percent-correct scores	58.71	57.58
Standard deviation of percent-correct scores	14.97	14.53
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.59	.58
Average item-total correlation (point-biserial)	.29	.29
Proportion of item-total correlations less than .15	.06	.07
Internal consistency (KR20)	.90	.89
Standard error of measurement in percent-correct score units	4.85	4.83

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM N	FORM O
	%	%
A	14	10
B	23	27
C	35	33
F	28	31

ANATOMY & PHYSIOLOGY I (104)

The Anatomy & Physiology I examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level undergraduate course in anatomy and physiology. The content of the examination corresponds with course offerings such as Fundamentals of Anatomy & Physiology I, General Anatomy & Physiology I, Human Anatomy & Physiology I, Introduction to Anatomy & Physiology I, and Integrated Human Anatomy & Physiology I.

The examination is based on material usually presented in a first semester course in anatomy and physiology. The examination test knowledge and understanding of the basic principles of anatomy and physiology and the integrative mechanism that contributes to the functioning of the human body. Topics include levels of organization of the body, chemical and cellular organization, fundamental body tissues, the skeletal system and articulations, muscle structure and physiology, divisions of the nervous system, neural integration and the senses and special senses, and endocrine control and regulation.

Description of Examination

The Anatomy & Physiology I examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Basic Concepts of Anatomy and Physiology	10
II. The Chemical and Cellular Basis of Life	15
III. Tissues and Integument	10
IV. Bones and Joints	15
V. The Muscular System	15
VI. The Nervous System	15
VII. Neural Integration and the Special Senses	10
VIII. The Endocrine System	10

The Anatomy & Physiology I examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Anatomy & Physiology I examination contains a total of 119 items. The scored items are representative of the content specifications outlined previously. New forms of the Anatomy and Physiology I examination were introduced on August 15, 2016. The following tables provide a summary of psychometric information for two current forms of Anatomy & Physiology I examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of August 15, 2016 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ANATOMY & PHYSIOLOGY I EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	364	329
Number of items	119	119
Average of percent-correct scores	54.91	56.16
Standard deviation of percent-correct scores	13.28	13.42
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.55	.56
Average item-total correlation (point-biserial)	.26	.27
Proportion of item-total correlations less than .15	.13	.07
Internal consistency (KR20)	.87	.88
Standard error of measurement in percent-correct score units	4.70	4.62

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM A	FORM B
	%	%
A	1	2
B	9	13
C	47	47
F	43	39

ANATOMY & PHYSIOLOGY II (106)

The Anatomy & Physiology II examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level undergraduate course in anatomy and physiology. The content of the examination corresponds with course offerings such as Fundamentals of Anatomy & Physiology II, General Anatomy & Physiology II, Human Anatomy & Physiology II, Introduction to Anatomy & Physiology II, and Integrated Human Anatomy & Physiology II.

The examination is based on material usually presented in the second course of a two-course sequence in anatomy and physiology. The examination measures knowledge and understanding of the basic principles of the integrative mechanisms that contribute to the functioning of the human body. Topics include the cardiovascular system and components of plasma, blood vessels and circulation, the lymphatic system and immunity, respiration and gas exchange, digestive structures and processes and metabolism and energetics, urinary system and electrolyte and acid-base balance, human reproduction and development, homeostatic structures, and the relationship between body systems and underlying structures.

Description of Examination

The Anatomy & Physiology II examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Blood and the Heart	20
II. Circulation and the Lymphatic System	15
III. Respiratory System	10
IV. Digestive System and Metabolism	20
V. Urinary System and Fluid & Electrolyte Balance	20
VI. Reproduction and Development	15

The Anatomy & Physiology II examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Anatomy & Physiology II examination contains a total of 120 items. The following tables provide a summary of psychometric information for two current forms of Anatomy and Physiology II examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of July 23, 2020 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ANATOMY & PHYSIOLOGY II EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	189	209
Number of items	120	120
Average of percent-correct scores	51.92	52.85
Standard deviation of percent-correct scores	11.35	11.79
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.52	.53
Average item-total correlation (point-biserial)	.21	.23
Proportion of item-total correlations less than .15	.31	.23
Internal consistency (KR20)	.84	.85
Standard error of measurement in percent-correct score units	4.58	4.55

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM A	FORM B
	%	%
A	1	0
B	4	5
C	42	35
F	53	60

BASIC GENETICS (250)

The Basic Genetics examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, lower-level, one-semester course in basic genetics. The content of the examination corresponds with course offerings such as Basic Genetics or Introduction to Heredity. This examination requires a familiarity with introductory biology, general chemistry, and algebra. The basic concepts and terminology of transmission, molecular, and population genetics are tested with this exam, along with the ability to apply this knowledge to solving problems in genetics and to understand the societal implications of genetic technologies.

Description of the Examination

The Basic Genetics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Molecular and Chromosomal Basics of Inheritance	15
II. Transmission/Mendelian Genetics	25
III. Genotype to Phenotype	25
IV. Mutation, Variation, and Evolution	20
V. Biotechnology and Societal Implications	15

The Basic Genetics examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examines.

Psychometric Information

The Basic Genetics examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously. The Basic Genetics examination was introduced on September 10, 2012. The following tables provide some basic psychometric information about one form of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE BASIC GENETICS EXAMINATION	
	EXAMINATION FORM
	B
Number of examinees	100
Number of items	100
Average of percent-correct scores	55.19
Standard deviation of percent-correct scores	16.34
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.55
Average item-total correlation (point-biserial)	.32
Proportion of item-total correlations less than .15	.07
Internal consistency (KR20)	.90
Standard error of measurement in percent-correct score units	5.05

BIOETHICS: PHILOSOPHICAL ISSUES (359)

The Bioethics: Philosophical Issues examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, upper-level course dealing with ethical theories related to bioethics, basic concepts in bioethics, clinical topics in biomedical ethics, social topics in bioethics, and topics in environmental ethics. The content of the examination corresponds with course offerings such as bioethics, biomedical ethics, and environmental ethics. The examination requires a familiarity with introductory ethics and philosophy.

The Bioethics: Philosophical Issues examination tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of the philosophical issues concerning biomedical and environmental ethics.

Description of the Examination

The Bioethics: Philosophical Issues examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Ethical Theories in Bioethics	15
II. Basic Concepts in Bioethics: Relationships Among Patients and Health Care Professionals	15
III. Clinical Topics in Biomedical Ethics	25
IV. Social Topics in Bioethics	20
V. Topics in Environmental Ethics	25

The Bioethics: Philosophical Issues examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Bioethics: Philosophical Issues examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Bioethics: Philosophical Issues examination were introduced on March 12, 2020. We are presently acquiring data for statistical analysis.

CALCULUS (150)

The Calculus examination measures knowledge and understanding of material typically taught in the first semester of an undergraduate sequence in Calculus. The content of the examination corresponds with course offerings commonly called Calculus I. The examination requires a familiarity with Precalculus topics including algebra, trigonometry, and functions. It tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of problems in business, the sciences, and engineering.

Description of the Examination

The Calculus examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Limits and Continuity	15
II. Derivatives	25
III. Applications of Derivatives	30
IV. Integrals	30

The Calculus examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Calculus examination contains a total of 60 items. The scored items are representative of the content specifications outlined previously. New forms of the Calculus examination were introduced on April 28, 2016. We are presently acquiring data for statistical analysis.

COLLEGE WRITING (110)

The College Writing examination corresponds to an introductory, one-semester course in college writing. It measures the ability to persuade a reader to pursue a specified course of action, using personal knowledge and experience to support a proposal, and to analyze and respond appropriately to written texts that represent opposing viewpoints, using the Modern Language Association (MLA) style of citation. In general, the examination measures the ability to organize knowledge, ideas, and information; to adopt rhetorical strategies such as narration, illustration, explanation, and description in appropriate ways; to adopt and maintain a tone and point of view appropriate for a specified audience and rhetorical situation; to develop and maintain a controlling idea and a coherent organization; and to write within the rhetorical, syntactic, and mechanical conventions of Standard Written American English.

Description of the Examination

The College Writing examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA

I. Proposal Writing
II. Analysis and Response

Each form of the College Writing examination consists of two questions representing the two types of writing prompts. Each type of prompt requires demonstration of a number of interrelated writing abilities.

An electronic "scoring engine" called IntelliMetric™ analyzes each response according to a complex series of criteria based on artificial intelligence. IntelliMetric™ is calibrated to make the same judgments on the quality of writing that a rater would make, and has proven to match human raters consistently. The electronic rating produces a grade report, including feedback on the dimensions of Focus & Meaning, Content & Development, Organization, Language Use & Style, and Mechanics & Conventions immediately after the examination has been taken. However, IntelliMetric™ cannot score a response that a) is too short, b) is off topic, c) is repetitious, d) has insufficient development, e) has too many unknown words, f) has major syntax problems, g) is simply a copy of the prompt, h) is in an unknown format, for example, a response written in a foreign language or in the form of a poem, i) has a deleted response, for example, text that is inadvertently highlighted and typed over while the intention was to add to it. In this case, the response will not receive an immediate electronic rating but will be forwarded to human raters. The human raters rate the exam using the same rubric as the IntelliMetric™ scoring engine. Each of the scored prompts is rated on a scale of 0 to 6. The total score on the test lies between 0 and 12. Scores are converted to percent scores.

The College Writing examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The following tables provide a summary of psychometric information for two current forms of the College Writing examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of September 25, 2019 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE COLLEGE WRITING EXAMINATION

	EXAMINATION FORM	
	C	G
Number of examinees	531	476
Number of items	2	2
CLASSICAL TEST THEORY SUMMARY		
Average of raw scores (and percent scores)	7.11 (59.25)	7.21(60.05)
Standard deviation of raw scores (and percent scores)	1.47(12.23)	1.35(11.24)
Average of raw scores (and percent scores) for Prompt 1	3.57(59.58)	3.60(59.92)
Standard deviation of raw scores (and percent scores) for Prompt 1	.87(14.44)	.84(14.04)
Average of raw scores (and percent scores) for Prompt 2	3.60(59.92)	3.62(60.30)
Standard deviation of raw scores (and percent scores) for Prompt 2	.84(14.01)	.76(12.69)

continued on next page

A study in the Journal of Technology, Learning and Assessment (JTLA) reported that the Intellimetric™ scoring engine is a consistent and reliable method for scoring Analytic Writing Assessment essays, when compared to human raters, after analyzing approximately 500 responses to each of 101 prompts. This study found that a perfect + adjacent agreement appears in 92 to 100 percent of instances. The Pearson correlations of agreement between human raters and the Intellimetric™ system averaged 0.83 (Dikli, 2006).

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE		
GRADE	FORM C	FORM G
	%	%
A	6	4
B	32	40
C	50	48
F	11	9

CONTEMPORARY MATHEMATICS (100)

The Contemporary Mathematics examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, lower-level, one-semester course in mathematics. The content of the examination corresponds with course offerings such as Mathematics in Contemporary Society, Liberal Arts Math, or Math for Non-STEM (science, technology, engineering, and mathematics) Majors. Knowledge of arithmetic and elementary algebra are prerequisites for the material covered in this examination. The exam tests for an ability to apply mathematical knowledge and concepts to understand and analyze practical contemporary mathematical problems.

Description of the Examination

The Contemporary Mathematics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Mathematical Reasoning	25
II. Probability and Statistics	30
III. Mathematics and Politics	20
IV. Graph Theory	25

The Contemporary Mathematics examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Contemporary Mathematics examination contains a total of 60 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Contemporary Mathematics examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of June 1, 2017 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR CONTEMPORARY MATHEMATICS EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	215	214
Number of items	60	60
Average of percent-correct scores	59.92	60.63
Standard deviation of percent-correct scores	14.04	15.66
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.60	.61
Average item-total correlation (point-biserial)	.29	.32
Proportion of item-total correlations less than .15	.11	.07
Internal consistency (KR20)	.80	.84
Standard error of measurement in percent-correct score units	6.30	6.31

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM A	FORM B
	%	%
A	3	6
B	18	25
C	43	40
F	36	30

CULTURAL DIVERSITY (545)

The Cultural Diversity examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, upper-level course in the social sciences, dealing with social, political, and economic realities of human difference in the United States. The content of the examination corresponds with course offerings such as Multiculturalism in the US, Race and Ethnic Relations, Cultural Diversity, or Contemporary Social Theory. The examination requires a familiarity with introductory sociology and/or introductory cultural anthropology.

The examination tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of the social construction of difference and its implications in US society.

Description of the Examination

The Cultural Diversity examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Framework for Understanding Cultural Diversity in the United States	20
II. Conceptualizing Cultural Diversity	25
III. Patterns of Ethnic Relations	15
IV. Racial and Ethnic Identities and Experiences	25
V. Responses to Dominance and Inequality	15

The Cultural Diversity examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Cultural Diversity examination contains a total of 125 items. The scored items are representative of the content specifications outlined previously. New forms of the Cultural Diversity examination were introduced on November 19, 2013. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR CULTURAL DIVERSITY EXAMINATION

	EXAMINATION FORM	
	E	F
Number of examinees	109	108
Number of items	125	125
Average of percent-correct scores	69.90	69.64
Standard deviation of percent-correct scores	12.80	12.68
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.70	.70
Average item-total correlation (point-biserial)	.26	.26
Proportion of item-total correlations less than .15	.20	.21
Internal consistency (KR20)	.87	.87
Standard error of measurement in percent-correct score units	4.58	4.55

EARTH SCIENCE (360)

The Earth Science examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level course in the physical, natural, and environmental sciences. The content of the exam corresponds with introductory course offerings such as earth science, physical geology, geoscience, environmental geoscience, or earth-system science. The examination tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of the earth's processes.

Description of the Examination

The Earth Science examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction	5
II. Plate Tectonics	10
III. The Rock Cycle	25
IV. The Hydrologic Cycle	25
V. Geologic Hazards	20
VI. Earth History	10
VII. Earth and Energy Resources	5

The Earth Science examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Earth Science examination contains a total of 110 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The Earth Science examination was introduced on December 3, 2012. We are presently acquiring data for statistical analysis.

ENGLISH COMPOSITION (434)

The English Composition examination corresponds to an introductory, two-semester, six-credit course in English Composition. The examination measures the ability to persuade a reader, to understand and compose an extended argument, to analyze and respond appropriately to written texts including literary texts, to use and document sources, and to recognize and write about revision and editing processes. In general, the examination measures the ability to organize knowledge, ideas, and information; to use rhetorical strategies such as narration, illustration, explanation, description, comparison and contrast, division, classification, and cause and effect in appropriate ways; to choose a tone and point of view appropriate for a specified rhetorical situation; to develop and maintain a controlling idea and a coherent organization; and to write within the rhetorical, syntactical, and mechanical conventions of standard written American English.

Description of the Examination

The English Composition examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA
I. Argumentation
II. Analysis and Response
III. Revision Strategy

Each form of the English Composition examination consists of three extended response (essay) questions in the form of writing prompts. Each of these prompts is rated on three dimensions. Each dimension is rated by trained content experts on a 1–6 point scale. A minimum of two expert raters evaluate each examinees response for each prompt, for each dimension. If the first two ratings are discrepant on one or more dimensions, a third rater is used to rate that prompt on all three dimensions. When there are three ratings, the average of all three is used only if they form a one-interval sequence; otherwise, the average of the two closest ratings is used. Ratings for each dimension are summed to obtain the prompt score and the prompt scores are summed to obtain a total score. The total score on the test lies between 9 and 54. Scores are converted to percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The English Composition examination contains a total of 3 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties when they were either scored or pretested in a previous examination. The following tables provide a summary of psychometric information for two current forms of the English Composition examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of June 21, 2010 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ENGLISH COMPOSITION EXAMINATION

	EXAMINATION FORM	
	K	L
Number of examinees	1060	1045
Number of items	3	3
Average of raw scores (and percent-correct scores)	29.32(45.16)	28.75(43.89)
Standard deviation of raw scores (and percent-correct scores)	6.08(13.51)	6.57(14.59)
CLASSICAL TEST THEORY SUMMARY		
Internal consistency (coefficient alpha)	.773	.764
Rating reliability (ICC 1,k)①	.89	.88
Standard error of measurement in raw score units (and percent score units)	2.90(6.44)	3.19(7.09)

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM K	FORM L
	%	%
A	4	2
B	12	13
C	55	50
D	24	26
F	6	8

① (ICC 1,k) refers to a specific type of intraclass correlation that was used to evaluate rating reliability for this examination. A brief description is provided in the Technical Appendix.

ETHICS: THEORY & PRACTICE (484)

The Ethics: Theory and Practice examination is based on material normally presented in a one-semester, upper-level, three-credit course in applied ethics. The examination measures understanding of ethical theories and concepts, metaethics, and the principles of moral deliberation as they apply to practical ethical situations. Testing for the application of knowledge about ethics is accomplished through the interpretation of case studies or situations and relative to sets of multiple-choice questions. The content category for theories and concepts includes theories about utilitarianism, natural law, and Kantianism, and concepts such as justice, duties and obligations, and rights. The metaethics category includes topics relating to subjectivism/objectivism, naturalistic fallacy, and genealogical subjects; moral deliberation covers topics such as moral sensitivity, status of moral judgments, and implications of moral concepts. Knowledge from the broad categories is then applied to practical ethical concerns such as social and personal issues, medical issues, professional and business ethics, and environmental issues.

Description of the Examination

The Ethics: Theory and Practice examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
Basic Theories, Basic Concepts	17
Metaethics, Moral Deliberation	16
Social and Personal Issues	16
Medical Issues	17
Professional and Business Issues	17
Environmental Issues	17

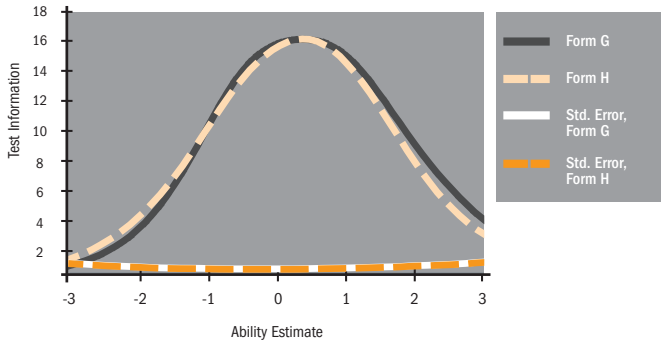
The Ethics: Theory & Practice examination is developed, scored, and evaluated using IRT methods of analysis. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Ethics: Theory and Practice examination contains a total of 110 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Ethics: Theory and Practice examination was introduced on May 8, 2015. The following tables provide a summary of psychometric information for two current forms of Ethics: Theory and Practice. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of May 8, 2015 to August 31, 2021.

Test Information Functions for Alternate Forms

Ethics: Theory and Practice (484)



SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ETHICS: THEORY & PRACTICE EXAMINATION		
	EXAMINATION FORM	
	G	H
Number of examinees	343	382
Number of items	110	110
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.68	.71
Average item-total correlation (point-biserial)	.23	.24
Proportion of item-total correlations less than .15	.16	.17
Internal consistency (KR20)	.84	.85

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE		
GRADE	FORM G	FORM H
	%	%
A	15	16
B	20	14
C	29	37
F	35	33

FOUNDATIONS OF GERONTOLOGY (407)

The Foundations of Gerontology examination is based on material that corresponds to a one-semester, upper-level, three-credit course in gerontology at the undergraduate level. The examination tests for knowledge and understanding of the biological, psychological, and social aspects of aging. It measures the ability to describe, understand, and analyze issues pertaining to the functioning and well-being of older adults. In addition to a knowledge base, the examinee is expected to have an awareness of the needs and realities involved in the aging process and the implications of population aging for society. Emphasis is placed on both normal aspects of aging and problems associated with aging. The content of the examination is multidisciplinary in nature and covers theories, concepts, empirical patterns, and their implications for policy and practice.

Description of the Examination

The Foundations of Gerontology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Important Concepts of Gerontology	10
II. Demography of Aging: Trends and Projections	12
III. Biology and Physical Health	17
IV. Psychology and Mental Health	14
V. Sociology	14
VI. Economics, Work, and Retirement	14
VII. Political Behavior and Public Policy	14
VIII. Death and Dying	5

The Foundations of Gerontology examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Foundations of Gerontology examination contains a total of 130 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of Foundations of Gerontology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of April 13, 2015 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR FOUNDATIONS OF GERONTOLOGY EXAMINATION

	EXAMINATION FORM	
	J	K
Number of examinees	172	157
Number of items	130	130
Average of percent-correct scores	71.37	69.27
Standard deviation of percent-correct scores	11.72	12.11
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.71	.69
Average item-total correlation (point-biserial)	.24	.24
Proportion of item-total correlations less than .15	.22	.25
Internal consistency (KR20)	.86	.86
Standard error of measurement in percent-correct score units	4.39	4.54

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM J	FORM K
	%	%
A	20	17
B	33	27
C	33	38
F	14	18

GENERAL CHEMISTRY I (107)

The General Chemistry I examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level undergraduate course in chemistry. The content of the examination corresponds with course offerings such Freshman Chemistry, Introduction to Chemistry, and College Chemistry. The examination is based on material usually presented in a first semester course in general chemistry. The examination topics include theory and problem solving in chemical reactions, atomic structures and periodic trends, chemical bonding, states of matter, gases, and energy. A familiarity with college algebra or higher is required.

Description of the Examination

The General Chemistry I examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Chemical Reactions and Problem Solving	25
II. Atomic Structures and Periodic Trends	25
III. Chemical Bonding	20
IV. Liquids, Solids, and Attractive Forces	10
V. Gases	10
VI. Energy Balance	10

The General Chemistry I examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The General Chemistry I examination contains a total of 70 items. The scored items are representative of the content specifications outlined previously. The General Chemistry I examination was introduced on April 1, 2015. We are presently acquiring data for statistical analysis.

INTERPERSONAL COMMUNICATION (417)

The Interpersonal Communication examination measures knowledge and understanding of the material and skills typically taught in a one-semester, three-credit, lower-level undergraduate course in interpersonal communication. The content of the examination corresponds with course offerings such as human communication dynamics, relational communication, communication in everyday life, principles of interpersonal communication, and effective communication. The examination tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in evaluating and improving aspects of interpersonal communication.

Description of the Examination

The Interpersonal Communication examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Basics of Interpersonal Communication	20
II. Verbal and Nonverbal Communication	20
III. Relationship Theories, Development, Maintenance, Deterioration, Repair, and Dissolution	20
IV. Challenges to Effective Interpersonal Communication	20
V. Applications in Interpersonal Contexts	20

The Interpersonal Communication examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Interpersonal Communication examination contains a total of 140 items. New form of the Interpersonal Communication examination was introduced on August 5,2019. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR INTERPERSONAL COMMUNICATION EXAMINATION	
	EXAMINATION FORM
	S
Number of examinees	103
Number of items	140
Average of percent-correct scores	59.21
Standard deviation of percent-correct scores	12.61
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.59
Average item-total correlation (point-biserial)	.24
Proportion of item-total correlations less than .15	.21
Internal consistency (KR20)	.87
Standard error of measurement in percent-correct score units	4.50

INTRODUCTION TO COMPUTER PROGRAMMING USING JAVA (190)

The Introduction to Computer Programming Using Java examination measures knowledge and understanding of material typically taught in a lower-level undergraduate course in Computer Programming. The content of the exam corresponds with course offerings such as Introduction to Computer Programming, Computer Science I, or Introductory Programming using Object-oriented Programming/Java. Students are expected to have basic proficiency in computer use and in the applications (such as any Java IDE) they will use to help prepare for this examination. This examination tests for comprehension and understanding of Introduction to programming in pursuit of organizational goals and strategies.

The exam specifically tests for an understanding of computer and software organization; the software development process; variables, constants, primitive data types, expressions and operators; control statements; modularity and function design; linear data structures; object oriented design, classes and objects; and files in the Java language.

Description of Examination

The Introduction to Computer Programming Using Java examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Programming Basics	15
II. Control	25
III. Modularity	15
IV. Arrays and Strings	15
V. Objects and classes	20
VI. Files	10

The Introduction to Computer Programming Using Java examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Computer Programming Using Java examination contains a total of 80 items. The scored items are representative of the content specifications outlined previously. The Introduction to Computer Programming Using Java examination was introduced on April 27, 2015 and we are presently acquiring data for statistical analysis.

INTRODUCTION TO MICROECONOMICS (257)

The Introduction to Microeconomics examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, lower-level, one-semester course in Microeconomics. The content of the examination corresponds with course offerings such as Principles of Microeconomics, Introduction to Microeconomics, Principles of Economics, or Introduction to Economics. No prior knowledge of economics is required for this examination.

This examination tests for a knowledge of facts and terminology, an understanding of concepts and forms, and for the examinee's ability to apply the concepts learned in Introduction to Microeconomics. The exam also requires a good understanding of high school algebra.

Description of the Examination

The Introduction to Microeconomics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Economics and the Economy	25
II. Markets and Behavior	20
III. Market Structures	20
IV. Resource Markets	20
V. Government Issues and Policies	15

The Introduction to Microeconomics examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Microeconomics examination contains a total of 120 items. New forms of the Introduction to Microeconomics examination were introduced on October 9, 2018. The following table provides some basic psychometric information about two current forms of the examination. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR INTRODUCTION TO MICROECONOMICS EXAMINATION		
	EXAMINATION FORM	
	A	B
Number of examinees	50	58
Number of items	120	120
Average of percent-correct scores	62.66	61.72
Standard deviation of percent-correct scores	16.13	16.09
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.63	.62
Average item-total correlation (point-biserial)	.33	.33
Proportion of item-total correlations less than .15	.14	.12
Internal consistency (KR20)	.92	.92
Standard error of measurement in percent-correct score units	4.65	4.64

INTRODUCTION TO MACROECONOMICS (258)

The Introduction to Macroeconomics examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, lower-level, one-semester course in Macroeconomics. The content of the examination corresponds with course offerings such as Principles of Macroeconomics, Introduction to Macroeconomics, Principles of Economics, or Introduction to Economics. No prior knowledge of economics is required for this examination.

This examination tests for a knowledge of facts and terminology, an understanding of concepts and forms, and for the examinee's ability to apply the concepts learned in Introduction to Macroeconomics. The exam also requires a good understanding of high school algebra.

Description of the Examination

The Introduction to Macroeconomics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Economics	10
II. The Marketplace	10
III. Measuring the Macro Economy	20
IV. Fluctuations in Economic Activity	20
V. Fiscal and Monetary Policies	30
VI. Supply-Side Policy, and the Relation Between Monetary and Fiscal Policies	10

The Introduction to Macroeconomics examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Macroeconomics examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Introduction to Macroeconomics examination were introduced on March 5, 2020. We are presently acquiring data for statistical analysis.

INTRODUCTION TO MUSIC (362)

The Introduction to Music examination measures knowledge and understanding of the material and skills typically taught in a one-semester, three-credit, lower-level course in music appreciation. The content of the examination is drawn from that commonly included in courses with titles like Introduction to Music Literature, Music Appreciation, Survey of Music, and Music in the Western World. No prior knowledge of music is required for this examination. The examination tests for a knowledge of facts and terminology, an understanding of concepts and forms, and the examinee's ability to apply this knowledge and understanding in listening to musical compositions. Examinees will be expected to know the different stylistic periods and composers of each period, including characteristics and forms from each historical period. Examinees are also expected to know biographical information about major composers and technical features of their specific compositions.

Description of the Examination

The Introduction to Music examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Elements	20
II. Media	15
III. Stylistic Periods and Composers	50
IV. American Innovations and non-Western Music	15

The Introduction to Music examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Music examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Introduction to Music examination were introduced on March 2, 2020. We are presently acquiring data for statistical analysis.

INTRODUCTION TO PHILOSOPHY (363)

The Introduction to Philosophy exam measures knowledge and understanding of the material typically taught in a one-semester, three-credit, lower-level, survey course in basic philosophy. The examination content reflects common knowledge drawn from courses with such titles as Introduction to Philosophy or Basic Philosophical Issues. No previous knowledge of philosophy is required prior to beginning study for this examination.

The examination tests for a knowledge of facts and terminology, an understanding of logic, epistemology, metaphysics, and ethics. Examinees will be expected to know logical reasoning, the history of philosophy and the different approaches to various philosophical problems.

Description of the Examination

The Introduction to Philosophy examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Nature of Philosophy and Logic	10
II. Metaphysics	35
III. Epistemology	20
IV. Ethics	35

The Introduction to Philosophy examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Philosophy examination contains a total of 110 items. New forms of the Introduction to Philosophy examination were introduced on August 5, 2019. The following two current forms of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR INTRODUCTION TO PHILOSOPHY EXAMINATION

	EXAMINATION FORM	
	C	D
Number of examinees	68	60
Number of items	110	110
Average of percent-correct scores	54.18	51.72
Standard deviation of percent-correct scores	14.17	14.76
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.54	.52
Average item-total correlation (point-biserial)	.27	.28
Proportion of item-total correlations less than .15	.19	.16
Internal consistency (KR20)	.87	.88
Standard error of measurement in percent-correct score units	5.08	5.05

INTRODUCTION TO PSYCHOLOGY (101)

The Introduction to Psychology examination measures knowledge and understanding of the material typically taught in a one-semester, three-credit, lower level survey course in a baccalaureate program. The examination measures knowledge and understanding of the theories and principles of general psychology and the ability to apply this information to everyday life examples. The content of the examination consists of 11 major categories: The Science of Psychology, Biological Influences on Behavior, Sensation and Perception, Consciousness, Learning and Memory, Motivation and Emotion, Cognition and Intelligence, Human Development, Personality, Psychological Disorders and Therapy, and Social Psychology. No prior knowledge or understanding of psychology is required.

Description of the Examination

The Introduction to Psychology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Science of Psychology	10
II. Biological Influence on Behavior	8
III. Sensation and Perception	5
IV. Consciousness	5
V. Learning and Memory	14
VI. Motivation and Emotion	8
VII. Cognition and Intelligence	8
VIII. Human Development	8
IX. Personality	8
X. Psychological Disorders and Therapy	16
XI. Social Psychology	10

The Introduction to Psychology examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Psychology examination contains a total of 113 items. The scored items are representative of the content specifications outlined previously. The following tables provide a summary of psychometric information for two current forms of Introduction to Psychology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of August 23, 2016 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE INTRODUCTION TO PSYCHOLOGY EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	123	165
Number of items	113	113
Average of percent-correct scores	59.45	60.68
Standard deviation of percent-correct scores	14.91	14.25
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.59	.61
Average item-total correlation (point-biserial)	.30	.29
Proportion of item-total correlations less than .15	.26	.13
Internal consistency (KR20)	.91	.90
Standard error of measurement in percent-correct score units	4.55	4.57

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM A	FORM B
	%	%
A	11	9
B	24	27
C	39	42
F	27	22

INTRODUCTION TO SOCIOLOGY (105)

The Introduction to Sociology examination measures knowledge and understanding of the material and skills typically taught in a one-semester, undergraduate survey course in a baccalaureate program. The examination content reflects common knowledge drawn from courses with such titles as Introduction to Sociology or General Sociology. No prior knowledge of sociology is required for this examination.

The examination tests for a knowledge of facts and terminology, for an understanding of concepts and forms, and for the examinee's ability to apply the concepts learned in an introductory sociology course.

Description of the Examination

The Introduction to Sociology test was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Sociological Perspective	10
II. The Social Foundations	20
III. Differentiation and Inequality	30
IV. Social Institutions	30
V. Social Change	10

The Introduction to Sociology examination is developed, scored, and evaluated using CTT methods. Examinees scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Introduction to Sociology examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. We are presently acquiring data for statistical analysis.

JUVENILE DELINQUENCY (364)

The Juvenile Delinquency examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, upper-level course in juvenile delinquency. The content of the examination is drawn from that commonly included in courses with such titles as Juvenile Delinquency or Juvenile Delinquency & Justice. The examination requires a familiarity with sociology, psychology, and research methodology.

The examination tests for a knowledge of facts and terminology, an understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of contemporary issues.

Description of the Examination

The Juvenile Delinquency examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Nature & Extent of Juvenile Delinquency	15
II. Theories of Juvenile Delinquency	30
III. Influences on Delinquency	30
IV. Juvenile Policing, Courts, Corrections, & Prevention	25

The Juvenile Delinquency examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Juvenile Delinquency examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. The following tables provide a summary of psychometric information for one current form of Juvenile Delinquency examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of April 20, 2015 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR JUVENILE DELINQUENCY EXAMINATION

	EXAMINATION FORM
	I
Number of examinees	152
Number of items	120
Average of percent-correct scores	67.98
Standard deviation of percent-correct scores	11.13
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.68
Average item-total correlation (point-biserial)	.22
Proportion of item-total correlations less than .15	.28
Internal consistency (KR20)	.85
Standard error of measurement in percent-correct score units	4.33

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM I
	%
A	4
B	24
C	43
F	28

LIFE SPAN DEVELOPMENTAL PSYCHOLOGY (583)

The Life Span Developmental Psychology examination is based on material that corresponds to a one-semester, three-credit, lower level undergraduate course in life span development. The examination measures understanding of the concepts, principles, and theories associated with life span development as well as the ability to apply this understanding in specific situations. The examinee will be expected to integrate content across the stages of the life span. A course in life span development typically has introductory psychology as a prerequisite.

Description of the Examination

The Life Span Developmental Psychology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Study of Life Span Development	15
II. Genetics, Prenatal Development, and Childbirth	10
III. Infancy and Toddlerhood	10
IV. Early Childhood	10
V. Middle Childhood	10
VI. Adolescence	10
VII. Early Adulthood	10
VIII. Middle Adulthood	10
IX. Late Adulthood	10
X. Death and Dying	5

The Life Span Developmental Psychology examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Life Span Developmental Psychology examination contains a total of 130 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Life Span Developmental Psychology examination were introduced on April 2, 2020. We are presently acquiring data for statistical analysis.

MICROBIOLOGY (558)

The Microbiology examination is based on material that corresponds to a one-semester, three-credit, lower-level course in microbiology at the undergraduate level. A general knowledge and understanding of chemistry, as well as biology or anatomy and physiology, is required. The examination tests for knowledge and understanding of bacteria, algae, fungi, protozoa, and viruses, and their relationships with humans.

Description of the Examination

The Microbiology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Microbiology	5
II. Biology of Microorganisms	25
III. Control of Microorganisms	15
IV. Disease, Resistance, and the Immune System	20
V. Biology of Infectious Diseases	25
VI. Environmental, Food, and Industrial Microbiology	10

The Microbiology examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Microbiology examination contains a total of 130 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Microbiology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of April 1, 2015 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE MICROBIOLOGY EXAMINATION

	EXAMINATION FORM	
	H	I
Number of examinees	2567	2530
Number of items	130	130
Average of percent-correct scores	61.84	61.52
Standard deviation of percent-correct scores	13.90	13.44
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.62	.62
Average item-total correlation (point-biserial)	.27	.25
Proportion of item-total correlations less than .15	.08	.07
Internal consistency (KR20)	.90	.89
Standard error of measurement in percent-correct score units	4.49	4.5

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM H	FORM I
	%	%
A	14	11
B	28	26
C	37	41
F	21	22

PATHOPHYSIOLOGY (354)

The Pathophysiology examination is based on material usually presented in a one-semester, three-credit upper-level undergraduate course in pathophysiology. The examination measures understanding of the physiologic mechanisms altered by disease in the living organism. The primary focus of the examination is on the altered health states of adults and includes clinical presentations, signs and symptoms, appropriate diagnostic studies, and global concepts of treatment. A familiarity with normal anatomy and physiology and microbiology is required. A familiarity with concepts of biochemistry and immunology would also be useful.

Description of the Examination

The Pathophysiology examination was developed based on the following test specifications (see content guide for details).

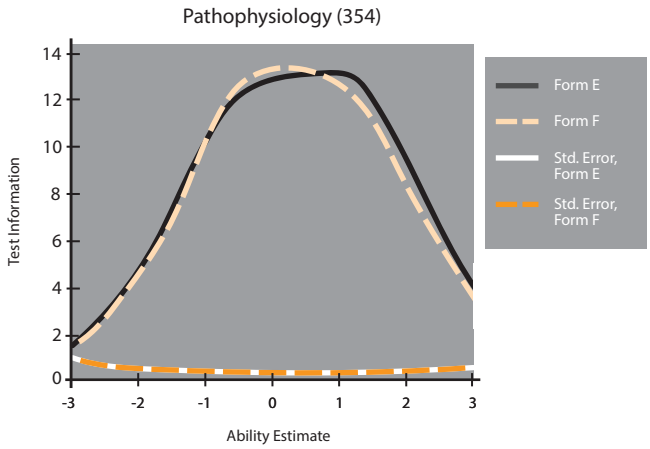
CONTENT AREA	PERCENT OF EXAMINATION
I. Cell Biology/Mechanisms of Cell Injury/ Neoplasia	10
II. Host Defense/Hematology	16
III. The Cardiovascular System	15
IV. The Respiratory System	11
V. The Renal System/Fluids and Electrolytes/Acid-base	12
VI. Neurology and the Musculoskeletal System	10
VII. The Gastrointestinal System/Nutrition/The Endocrine System/The Reproductive System	16
VIII. Clinical Applications Related to the Various Systems	10

The Pathophysiology examination is developed, scored, and evaluated using IRT methods. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Pathophysiology examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Pathophysiology examination were introduced on February 13, 2020. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have sufficient volume of examinees.

Test Information Functions for Alternate Forms



SUMMARY OF PSYCHOMETRIC INFORMATION FOR PATHOPHYSIOLOGY EXAMINATION		
	EXAMINATION FORM	
	E	F
Number of examinees	57	53
Number of items	120	120
Average of percent-correct scores	65.46	67.81
Standard deviation of percent-correct scores	15.82	14.70
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.65	.68
Average item-total correlation (point-biserial)	.34	.31
Proportion of item-total correlations less than .15	.13	.09
Internal consistency (KR20)	.92	.91
Standard error of measurement in percent-correct score units	4.42	4.43

PHYSICS (140)

The Physics examination measures knowledge and understanding of the material typically taught in a two-semester (lecture-only) algebra-/trigonometry-based undergraduate course sequence in Physics. The content of the examination corresponds with course offerings commonly called Physics I & II. The examinationrequires a familiarity with units and conversion; scientific notation and orders of magnitude; algebra, trigonometry, and graphing techniques. The examination tests for a comprehensive knowledge of facts and terminology, an understanding of physical concepts and theories, and the student's ability to apply this knowledge and understanding to analyze and solve a variety of problems.

Description of the Examination

The Physics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Mechanics	30
II. Thermal Physics	20
III. Electromagnetism	25
IV. Lights and Optics	15
V. Modern Physics	10

The Physics examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Physics examination contains a total of 70 items. New forms of the Physics examination were introduced on May 15, 2019. We are presently acquiring data for statistical analysis.

POLITICAL SCIENCE (170)

The Political Science examination measures the knowledge and understanding of material typically taught in a one-semester, lower-level undergraduate course in Political Science. The content of the examination corresponds with introductory course offerings such as introduction to political science, comparative law, and international relations. The examination tests for a knowledge of facts and terminology; an understanding of concepts and theories; and the examinee's ability to apply this knowledge and understanding in an analysis of politics, government, and world affairs.

Description of the Examination

The Political Science examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Basic Terms/Concepts of Political Science	10
II. Political Theories and Ideologies	15
III. Comparative Government	30
IV. Comparative Law and Policy	20
V. International Relations	25

The Political Science examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Political Science examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The Political Science examination was introduced on October 29, 2009. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE POLITICAL SCIENCE EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	103	128
Number of items	120	120
Average of percent-correct scores	69.22	70.06
Standard deviation of percent-correct scores	14.60	12.61
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.69	.70
Average item-total correlation (point-biserial)	.33	.27
Proportion of item-total correlations less than .15	.07	.13
Internal consistency (KR20)	.93	.90
Standard error of measurement in percent-correct score units	3.96	4.01

PRECALCULUS ALGEBRA (116)

The Precalculus Algebra examination measures knowledge and understanding of material and skills typically taught in a three-credit, undergraduate, lower-level, one-semester course in Precalculus Algebra. The content of the examination reflects comprehension of college-level algebra skills and concepts. It measures knowledge and understanding of the following major themes: solving a variety of equations and inequalities; graphing, analyzing and applying transcendental and algebraic functions; and operations with functions.

Description of the Examination

The Precalculus Algebra examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Equations and Inequalities	15
II. Graphs and Functions	25
III. Linear and Quadratic Functions	20
IV. Polynomial and Rational Functions	10
V. Algebra of Functions	10
VI. Exponential and Logarithmic Functions	20

The Precalculus Algebra examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Precalculus Algebra examination contains a total of 60 items. The scored items are representative of the content specifications outlined previously. The Precalculus Algebra examination was introduced on February 6, 2013. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE PRECALCULUS ALGEBRA EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	72	77
Number of items	60	60
Average of percent-correct scores	56.44	51.27
Standard deviation of percent-correct scores	21.77	17.83
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.56	.51
Average item-total correlation (point-biserial)	.43	.36
Proportion of item-total correlations less than .15	.04	.10
Internal consistency (KR20)	.92	.89
Standard error of measurement in percent-correct score units	5.97	6.01

PSYCHOLOGY OF ADULTHOOD & AGING (355)

The Psychology of Adulthood & Aging examination is based on material usually presented in a one-semester, three-credit, upper-level course in psychology of adulthood and aging. The examination measures understanding of the psychological, biological, and social aspects of aging throughout adulthood. The examination includes both classic and contemporary research and theory related to adult development and aging. The examination includes the following content areas: concepts of age and demographics; research methods and designs; personality and adjustment; biology, physiology, health, and chronic conditions; cognitive aspects; work, retirement, leisure, and relationships; death, dying, and bereavement; and mental health and psychopathology. A familiarity with the content typically presented in a general introductory-level psychology course is required.

Description of the Examination

The Psychology of Adulthood & Aging examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Concepts of Age and Demographics	7
II. Research Methods and Designs	10
III. Personality	7
IV. Biology, Physiology, Health, and Chronic Conditions	19
V. Cognitive Aspects	17
VI. Work, Retirement, Leisure, and Relationships	15
VII. Death, Dying, and Bereavement	7
VIII. Mental Health, Adjustment, and Psychopathology	18

The Psychology of Adulthood & Aging examination is developed, scored, and evaluated using CTT methods. Examinees' scores are standard scores with a population mean of 50 and standard deviation of 10. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Psychology of Adulthood & Aging examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Psychology of Adulthood & Aging examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of November 19, 2013 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE PSYCHOLOGY OF ADULTHOOD & AGING EXAMINATION

	EXAMINATION FORM	
	G	H
Number of examinees	636	687
Number of items	120	120
Average of percent-correct scores	70.93	69.65
Standard deviation of percent-correct scores	11.50	11.78
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.71	.70
Average item-total correlation (point-biserial)	.23	.23
Proportion of item-total correlations less than .15	.13	.16
Internal consistency (KR20)	.85	.86
Standard error of measurement in percent- correct scores	4.41	4.48

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM G	FORM H
	%	%
A	10	14
B	42	46
C	25	19
F	23	21

RESEARCH METHODS IN PSYCHOLOGY (356)

The Research Methods in Psychology examination is based on material that corresponds to a one-semester, three-credit, upper-level undergraduate course in research methods. The examination measures understanding of the course material as well as the ability to apply this understanding in specific research situations. The examination requires a background in introductory psychology and elementary statistics.

Description of the Examination

The Research Methods in Psychology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Experimental Psychology and the Scientific Method	5
II. Research Ethics (APA Guidelines)	7
III. Alternatives to Experimentation (Nonexperimental Designs)	25
IV. Basic Concepts of Experimental Research	25
V. Experimental Research Designs	20
VI. Data Analysis and Interpretation	10
VII. Writing Research Reports	8

The Research Methods in Psychology examination is developed, scored, and evaluated using IRT methods. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Research Methods in Psychology examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables and graph provide a summary of psychometric information for two current forms of the Research Methods in Psychology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of July 11, 2011 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE RESEARCH METHODS IN PSYCHOLOGY EXAMINATION

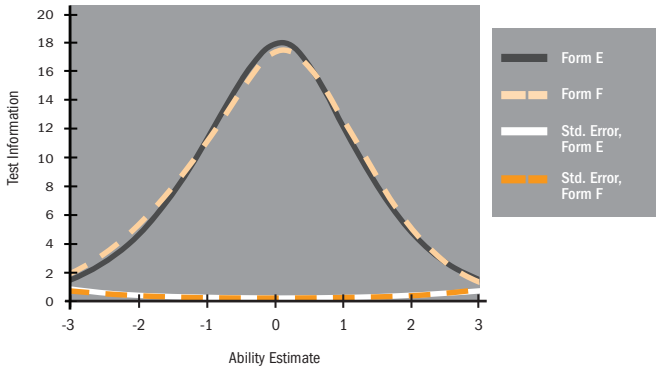
	EXAMINATION FORM	
	E	F
Number of examinees	906	931
Number of items	120	120
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.70	.71
Average item-total correlation (point-biserial)	.34	.32
Proportion of item-total correlations less than .15	.01	.00
Internal consistency (KR20)	.92	.92

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM E	FORM F
	%	%
A	17	16
B	36	37
C	33	34
F	14	14

Test Information Functions for Alternate Forms

Research Methods in Psychology (356)



SCIENCE OF NUTRITION (259)

The examination in Science of Nutrition measures knowledge and understanding of material typically taught in a three-credit, undergraduate, lower-level, one-semester course in Science of Nutrition. The content of the examination corresponds to course offerings such as Introduction to Nutrition, Principles of Nutritional Science, Human Nutrition, or Nutrition Science. No prior knowledge of nutrition is required for this examination; however, students are expected to have a basic understanding of human physiology, biology, and chemistry. This examination tests for a knowledge of facts and terminology, an understanding of concepts, and for the student's ability to apply the concepts learned in Science of Nutrition. This exam is at the undergraduate level.

Description of Examination

The Science of Nutrition examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Nutrition	15
II. Macronutrients	25
III. Water and Micronutrients	25
IV. Physiology of Nutrient Utilization	15
V. Consequences of Energy Balance	20

The Science of Nutrition examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Science of Nutrition examination contains a total of 116 items. The scored items are representative of the content specifications outlined previously. New forms of the Science of Nutrition examination were introduced on August 18, 2016. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE SCIENCE OF NUTRITION EXAMINATION		
	EXAMINATION FORM	
	A	B
Number of examinees	114	106
Number of items	116	116
Average of percent-correct scores	64.07	65.58
Standard deviation of percent-correct scores	15.77	14.02
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.68	.65
Average item-total correlation (point-biserial)	.34	.32
Proportion of item-total correlations less than .15	.05	.06
Internal consistency (KR20)	.92	.90
Standard error of measurement in percent-correct score units	4.40	4.54

SOCIAL PSYCHOLOGY (357)

The Social Psychology examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, upper-level course in a baccalaureate program. The examination measures knowledge and understanding of the theories and principles of social psychology and the ability to apply this information to everyday life examples. The content of the examination consists of nine major categories: methodology, social cognition and perception, the self, attitudes, group decisions, attraction, helping, prejudice, and applications. Knowledge and understanding of research methods in psychology is required.

Examinees will be expected to demonstrate basic knowledge of research methods (types of design, validity, and ethical concerns), comprehension of major theories and phenomena within social psychology, and the ability to apply this knowledge to examples of social psychology events in everyday life.

Description of the Examination

The Social Psychology examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Social Psychology and Methodology	10
II. Social Cognition and Perception	10
III. The Self	10
IV. Attitudes	10
V. Group Decisions	15
VI. Attraction	10
VII. Prosocial Behavior and Altruism	10
VIII. Stereotyping, Prejudice, and Discrimination	15
IX. Applied Social Psychology	10

The Social Psychology examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Social Psychology examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of Social Psychology examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of April 8, 2019 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE SOCIAL PSYCHOLOGY EXAMINATION

	EXAMINATION FORM	
	F	G
Number of examinees	192	184
Number of items	119	119
Average of percent-correct scores	75.09	74.67
Standard deviation of percent-correct scores	14.09	13.98
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.75	.75
Average item-total correlation (point-biserial)	.33	.32
Proportion of item-total correlations less than .15	.08	.10
Internal consistency (KR20)	.92	.91
Standard error of measurement in percent-correct score units	4.00	4.10

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM F	FORM G
	%	%
A	24	28
B	35	33
C	29	29
F	12	10

SPANISH LANGUAGE (102)

The Spanish Language examination measures knowledge and understanding of material typically taught in a two-semester, undergraduate course sequence in elementary Spanish. The content of the examination corresponds with course offerings such as Elementary Spanish. It assesses basic Spanish language proficiencies in the areas of receptive skills, expressive skills, and cultural skills (applying language proficiencies within authentic cultural contexts), through four question types: listening comprehension (using audio cues), reading comprehension, verbal communication, and grammar.

Description of the Examination

The Spanish Language examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Communicative Objectives	20
II. Vocabulary and Pronounciation	20
III. Structures	20
IV. Reading and Listening Comprehension	30
V. Cultural Connections and Comparisons	10

The Spanish Language examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Spanish Language examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Spanish Language examination. Form A was introduced in March 15, 2018 and more information on Form A will be provided once we have sufficient volume of examinees. The information for Form B was based on the performance of examinees taking this examination for credit nationwide, through the time period of June 3, 2010 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE SPANISH LANGUAGE EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	56	221
Number of items	100	100
Average of percent-correct scores	75.02	71.09
Standard deviation of percent-correct scores	20.17	21.60
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.75	.71
Average item-total correlation (point-biserial)	.47	.49
Proportion of item-total correlations less than .15	.01	.01
Internal consistency (KR20)	.96	.96
Standard error of measurement in percent- correct score units	3.91	4.15

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM B
	%
A	42
B	13
C	27
F	19

STATISTICS (210)

The Statistics examination is based on material typically taught in an introductory, one-semester undergraduate course in Statistics. It measures knowledge and understanding of the fundamental concepts of descriptive and inferential statistics and is designed to correspond to a service course applicable to many majors. A basic knowledge of algebra is required. Questions about the meaning and application of basic statistical ideas are included.

Some of the questions involve calculations. A basic 8-function calculator—similar to that provided as part of the basic software package for an entry-level personal computer—will be available on screen at Pearson Professional Centers. The formulas and table referred to in this guide will be provided with the examination.

Description of the Examination

The Statistics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Statistics	5
II. Summarizing, Organizing, Describing Data	20
III. Regression and Correlation	10
IV. Basic Probability Theory	10
V. Probability Distributions	10
VI. Sampling	10
VII. Statistical Estimation	15
VIII. Hypothesis Testing	20

The Statistics examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Statistics examination contains a total of 67 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Statistics examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of February 8, 2016 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE STATISTICS EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	205	222
Number of items	67	67
Average of percent-correct scores	65.30	62.17
Standard deviation of percent-correct scores	21.23	21.23
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.65	.62
Average item-total correlation (point-biserial)	.45	.44
Proportion of item-total correlations less than .15	.0	.0
Internal consistency (KR20)	.94	.93
Standard error of measurement in percent-correct score units	5.30	5.43

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM A	Form B
	%	%
A	16	15
B	20	19
C	37	41
F	27	25

WEATHER AND CLIMATE (171)

The examination in Weather and Climate measures knowledge, understanding and practical application of material typically taught in a one-semester, three-credit, lower-level undergraduate course in Weather and Climate I. The content is drawn from that commonly included in courses with such titles as Weather and Climate I, Introduction to Atmospheric Science, Introduction to Weather and Climate, or Introduction to Meteorology. The examination tests for comprehension of college level meteorology and atmospheric science skills and concepts. The examination measures knowledge and understanding of the following major themes: observing, analyzing, describing, and diagramming the basics of major atmospheric processes including, energy, pressure, wind, precipitation, air masses, fronts, storm systems, and basic climate and weather patterns and understanding the physical processes and mechanisms underlying weather and climate behaviors and phenomena.

Description of the Examination

The Weather and Climate examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Characteristics and Behaviors of the Atmosphere	30
II. Hydrologic Cycle and the Atmosphere, Weather, and Climate	20
III. Forms of Weather	20
IV. Human Factors	15
V. Climate	15

The Weather and Climate examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Weather and Climate examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. The Weather and Climate examination was introduced on November 19, 2013. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR WEATHER AND CLIMATE EXAMINATION	
	EXAMINATION FORM
	B
Number of examinees	108
Number of items	120
Average of percent-correct scores	52.19
Standard deviation of percent-correct scores	13.01
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.52
Average item-total correlation (point-biserial)	.26
Proportion of item-total correlations less than .15	.20
Internal consistency (KR20)	.88
Standard error of measurement in percent-correct score units	4.52

WORLD CONFLICTS SINCE 1900 (367)

The World Conflicts Since 1900 examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, upper-level course in international relations dealing with the origins of the major international conflicts. The content of the examination is drawn from that commonly included in courses with such titles as The Causes of War, International Relations, Twentieth Century Conflicts, and Global Conflicts. The examination requires a familiarity with modern world history and introductory international relations.

The examination tests for a knowledge of facts and terminology, an understanding of concepts, and the examinee's ability to apply this knowledge and understanding in an analysis of contemporary events.

Description of the Examination

The World Conflicts Since 1900 examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Case Studies	33
II. Theories: Competing Views	33
III. Contemporary Sources of Conflict	34

The World Conflicts Since 1900 examination is developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The World Conflicts Since 1900 examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the World Conflicts Since 1900 examination were introduced on September 18, 2019. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR WORLD CONFLICTS SINCE 1900 EXAMINATION

	EXAMINATION FORM	
	F	G
Number of examinees	50	47
Number of items	113	113
Average of percent-correct scores	64.52	69.17
Standard deviation of percent-correct scores	15.67	15.59
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.65	.69
Average item-total correlation (point-biserial)	.33	.33
Proportion of item-total correlations less than .15	.09	.13
Internal consistency (KR20)	.92	.92
Standard error of measurement in percent-correct score units	4.54	4.40

WORLD POPULATION (358)

The World Population examination measures knowledge and understanding of material that corresponds to a one-semester, three-credit, upper-level course in world population offered in sociology or geography. Excelsior College, the test developer, grants three (3) semester hours of upper-level undergraduate credit to examinees who receive a letter grade of C or higher on this examination. The examination requires knowledge of content included in lower-level arts and sciences courses, and requires basic college-level mathematical skills. Familiarity with the content of lower-level social sciences courses (for example, sociology, geography, economics) is helpful in learning the content of the examination.

The examination tests for a knowledge and understanding of the subject matter and of interrelationships among human population, society, and the environment. It tests for the ability to demonstrate interpretive skills, including the interpretation of tabular and graphed data; to analyze information; and to apply critical thinking.

Description of the Examination

The World Population examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of the World's Population	15
II. Demographic Perspectives	10
III. Fertility	15
IV. Mortality	10
V. Migration and Urbanization	15
VI. Case Studies and the Future of World Population	15
VII. Population Issues	20

The World Population examination is developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The World Population examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for one current form of the World Population examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of July 11, 2011 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE WORLD POPULATION EXAMINATION

	EXAMINATION FORM
	H
Number of examinees	309
Number of items	120
Average of percent-correct scores	72.31
Standard deviation of percent-correct scores	12.37
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.72
Average item-total correlation (point-biserial)	.27
Proportion of item-total correlations less than .15	.11
Internal consistency (KR20)	.88
Standard error of measurement in percent-correct score units	4.29

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM H
	%
A	30
B	40
C	24
F	6

PSYCHOMETRIC INFORMATION FOR
UEXCEL EXAMINATIONS IN

Business

BUSINESS ETHICS (323)

The Business Ethics examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, upper-level, one-semester course in business ethics. The content of the examination is designed to assess mastery of business concepts, principles, and knowledge related to business ethics. In addition to factual knowledge, the exam evaluates examinees' abilities to analyze and solve ethical problems, understand relationships, and interpret material. The exam may contain questions that require critical thinking and interpretation of situational factors related to the interaction of business, government, and society.

Description of the Examination

The Business Ethics examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview and Macro Issues	10
II. A Managerial Perspective	10
III. Internal Stakeholders' Ethical Considerations	25
IV. External Stakeholders' Ethical Considerations	25
V. Government as a Special External Stakeholder	20
VI. International Considerations in Business Ethics in Business Ethics	5
VII. Technological Considerations	5

The Business Ethics examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Business Ethics examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The Business Ethics examination was introduced on January 30, 2013. The following tables provide a summary of psychometric information for one current forms of Business Ethics examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of June 4, 2018 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR BUSINESS ETHICS EXAMINATION

	EXAMINATION FORM
	D
Number of examinees	165
Number of items	100
Average of percent-correct scores	72.02
Standard deviation of percent-correct scores	11.58
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.72
Average item-total correlation (point-biserial)	.25
Proportion of item-total correlations less than .15	.22
Internal consistency (KR20)	.83
Standard error of measurement in percent-correct score units	4.74

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM D
	%
A	9
B	36
C	33
F	22

BUSINESS INFORMATION SYSTEMS (221)

The Business Information Systems examination measures knowledge and understanding of material typically taught in an introductory one-semester, three-credit, undergraduate course in Business Information Systems. The content of the examination corresponds with course offerings such as Business or Computer Information Systems, Management Information Systems, Introduction or Fundamentals of Information Systems, Information Systems and Computer Applications, and Introduction to Computing Information Sciences. Students should enter this course with a basic proficiency in computer use and in the office application they will use to help prepare for this examination.

This examination tests for comprehension and understanding of Business Information Systems in pursuit of organizational goals and strategies. This examination specifically tests for an understanding of the general principles and concepts of information systems, including application of information systems in business, impact of information systems on organizations, the technology of information systems, the importance of data base management, enterprise systems, decision support systems, and knowledge management systems. The exam also covers topics such as the systems development life cycle and the personal and societal impact of information systems.

Description of the Examination

The Business Information Systems examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Information Systems	15
II. The Technology of Information Systems	30
III. Business Information Systems	30
IV. Systems Development	15
V. Personal/Social Impact of Computers	10

The Business Information Systems examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Business Information Systems examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. The Business Information Systems examination was introduced on June 15, 2015 and we are presently acquiring data for statistical analysis.

BUSINESS LAW (255)

Business Law examination measures knowledge and understanding of material typically taught in an introductory one-semester, three-credit, undergraduate course in Business Law. The examination tests for comprehension and understanding of Business Law in pursuit of organizational goals and strategies. This examination specifically tests for a familiarity with the key legal issues and terms related to business law as well as an application of the legal tools needed to deal with real world legal/business issues within the U.S. legal environment. The exam requires an understanding of sources of law, dispute resolution, business ethics, criminal law as it relates to business, tort law, contracts, agency law, the various types of business organizations and the matters of real and intellectual property under U.S. law.

Description of the Examination

The Business Law examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Business Law	20
II. The US Constitution	10
III. Ethics, Criminal, and Tort Law	20
IV. Contracts	30
V. Agency, Business Organizations, and Property	20

The Business Law examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Business Law examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously. The Business Law examination was introduced on July 1, 2012. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR BUSINESS LAW EXAMINATION		
	EXAMINATION FORM	
	A	B
Number of examinees	62	57
Number of items	100	100
Average of percent-correct scores	69.53	68.12
Standard deviation of percent-correct scores	10.66	10.42
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.70	.68
Average item-total correlation (point-biserial)	.21	.20
Proportion of item-total correlations less than .15	.35	.37
Internal consistency (KR20)	.81	.80
Standard error of measurement in percent-correct score units	4.66	4.65

FINANCIAL ACCOUNTING (253)

The Financial Accounting examination measures knowledge and understanding of material typically taught in a one-semester three-credit, lower-level course in the Financial Accounting.

The examination tests for knowledge of facts and terminology, and understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of basic financial accounting in pursuit of organizational goals and strategies, and for the familiarity with the technical skills of financial statements, accounting information systems, operating decisions, and financing decisions. As a manager/accountant, the examinee should be able to identify relevant information and the appropriate methods for analyzing information and working in a financial, global and ethical environment.

Description of the Examination

The Financial Accounting examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Financial Accounting & Reporting	15
II. Accounting, Information Systems & Internal Controls	25
III. Operating Activities	25
IV. Investing and Financing Activities	25
V. Other Dimensions of Financial Reporting	10

The Financial Accounting examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Financial Accounting examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. The Financial Accounting examination was introduced on January 27, 2012. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE FINANCIAL ACCOUNTING EXAMINATION	
	EXAMINATION FORM
	A
Number of examinees	127
Number of items	120
Average of percent-correct scores	61.10
Standard deviation of percent-correct scores	13.90
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.61
Average item-total correlation (point-biserial)	.28
Proportion of item-total correlations less than .15	.14
Internal consistency (KR20)	.89
Standard error of measurement in percent-correct score units	4.54

HUMAN RESOURCE MANAGEMENT (351)

The Human Resource Management examination measures knowledge and understanding of material that corresponds to a one-semester, three-credit, upper-level survey course at the undergraduate level. The examination corresponds to a course required of management majors usually taken in the junior or senior year. Examination content is drawn from that commonly included in courses titled Human Resources, Human Resource Management, or Personnel Administration. The examination tests for a knowledge of facts and terminology, an understanding of human resource management concepts and principles, and the ability to apply these concepts to typical human resource management situations. A knowledge of basic management concepts is required.

Description of the Examination

The Human Resource Management examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Strategic Human Resource Management	10
II. Human Resource Management and Multinational Organizations	10
III. Legal Environment	10
IV. Human Resource Planning	10
V. Human Resource Staffing	10
VI. Performance Management	10
VII. Employee Development	10
VIII. Employee Safety, Health, Welfare, and Security	10
IX. Employee Compensation	10
X. Labor Relations	10

The Human Resource Management examination is developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Human Resource Management examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The scored items are representative of the content specifications outlined previously. The Human Resources Management examination was introduced on October 28, 2019 and we are presently acquiring data for statistical analysis.

LABOR RELATIONS (352)

The Labor Relations examination measures knowledge and understanding of material typically taught in a one-semester survey, three-credit course usually taken in the junior or senior year of a business, industrial relations, or economics program. Examination content is drawn from that commonly included in courses with such titles as Labor Relations, Labor-Management Relations, Industrial and Labor Relations, or Collective Bargaining. The examination tests for a knowledge of facts and terminology, an understanding of basic concepts, and the ability to apply this knowledge and understanding. Material is primarily focused on U.S. labor relations.

Description of the Examination

The Labor Relations examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Labor Relations in the United States	20
II. American Labor History	10
III. American Labor Law in the Private Sector	10
IV. The Organizing Process	10
V. Collective Bargaining	20
VI. Contract Administration	10
VII. Labor Arbitration	10
VIII. The Public Sector	5
IX. Labor Relations Abroad	5

The Labor Relations examination is developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Labor Relations examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Labor Relations examination were introduced on August 1, 2018. We are presently acquiring data for statistical analysis.

MANAGERIAL ACCOUNTING (254)

The Managerial Accounting examination measures knowledge and understanding of material typically taught in a one-semester three-credit, lower-level course in Managerial Accounting. The content of the exam corresponds with introductory course offerings such as Managerial Accounting.

The examination tests for knowledge of facts and terminology, understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of the fundamentals of basic unit cost, cost flow management systems and processes, budgeting and performance measurement, and cost analysis and pricing decisions.

Description of the Examination

The Managerial Accounting examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Overview of Managerial Accounting and Cost Concepts	15
II. Job-Order Costing and Process Costing	10
III. Cost behavior Analysis and Cost Volume-Profit Relationships	20
IV. Activity Based Costing	10
V. Profit Planning and Standard Costs	15
VI. Segment Reporting, Decentralization, and Balanced Score Card	5
VII. Short-Term and Long-Term Decision Making	15
VIII. Financial Statement Analysis	10

The Managerial Accounting examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Managerial Accounting examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously. The Managerial Accounting examination was introduced on January 27, 2012. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE MANAGERIAL ACCOUNTING EXAMINATION	
	EXAMINATION FORM
	B
Number of examinees	83
Number of items	100
Average of percent-correct scores	65.35
Standard deviation of percent-correct scores	14.41
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.65
Average item-total correlation (point-biserial)	.30
Proportion of item-total correlations less than .15	.17
Internal consistency (KR20)	.89
Standard error of measurement in percent-correct score units	4.80

OPERATIONS MANAGEMENT (420)

The Operations Management examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, upper-level, one-semester course in Operations Management. The content of the examination corresponds to course offerings such as Operations Management, or Operations and Supply Chain Management. No prior knowledge of business is required for this examination; however, examinees are expected to have a strong understanding of business statistics. The exam also requires a strong understanding of high school algebra. This exam will not test spreadsheet skills. The examination tests for knowledge of facts and terminology, an understanding of concepts and forms, and the examinee's ability to apply the concepts learned in actual operations management.

Description of the Examination

The Operations Management examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Operations and Supply	25
II. Design	25
III. Creating and Managing the Supply Chain	25
IV. Planning and Control	25

The Operations Management examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Operations Management examination contains a total of 80 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The Operations Management examination was introduced on January 30, 2013. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE OPERATIONS MANAGEMENT EXAMINATION

	EXAMINATION FORM	
	A	B
Number of examinees	94	102
Number of items	80	80
Average of percent-correct scores	56.43	58.3
Standard deviation of percent-correct scores	13.18	13.30
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.56	.58
Average item-total correlation (point-biserial)	.26	.28
Proportion of item-total correlations less than .15	.15	.15
Internal consistency (KR20)	.83	.84
Standard error of measurement in percent-correct score units	5.51	5.31

ORGANIZATIONAL BEHAVIOR (353)

The Organizational Behavior examination measures knowledge, comprehension, application, and analysis of material that corresponds to a one-semester, three-credit, upper-level course at the undergraduate level. The examination corresponds to a course typically required of business administration majors usually taken in the junior or senior year.

Examination content is drawn from that commonly included in courses taught in business or psychology programs with such titles as Organizational Behavior, Organizational Psychology, Behavior in Organizations, Psychology of Business, or Psychology for Managers. The examination primarily concerns the individual and workforce diversity, interpersonal processes and the group, and the organization. A knowledge of the principles of management is required. The examination tests for a knowledge of facts and terminology, an understanding of basic concepts, and the ability to apply this knowledge and understanding to typical business situations.

Description of the Examination

The Organizational Behavior examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Organizational Behavior, the Individual, and Workforce Diversity	40
II. Interpersonal Processes and the Group	35
III. Organizational Processes and Structure	25

The Organizational Behavior examination is developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Organizational Behavior examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. New forms of the Organizational Behavior examination were introduced on April 29, 2015. The following tables provide a summary of psychometric information for two current forms of Organizational Behavior. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of April 29, 2015 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ORGANIZATIONAL BEHAVIOR EXAMINATION

	EXAMINATION FORM	
	J	K
Number of examinees	390	383
Number of items	120	120
Average of percent-correct scores	66.87	67.50
Standard deviation of percent-correct scores	14.60	14.08
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.67	.67
Average item-total correlation (point-biserial)	.30	.28
Proportion of item-total correlations less than .15	.02	.03
Internal consistency (KR20)	.90	.90
Standard error of measurement in percent-correct score units	4.52	4.52

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM J	FORM K
	%	%
A	20	21
B	43	39
C	21	24
F	16	15

PRINCIPLES OF FINANCE (350)

The Principles of Finance examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, upper-level, one-semester course in Principles of Finance. The content of this examination is drawn from that commonly included in courses with such titles as Finance, Principles of Finance, or Corporation Finance. This examination requires a familiarity with macroeconomics, microeconomics, financial accounting, and statistics. This exam focuses on balancing finance, marketing, and operating decisions for doing business in multi-currency environments. It also includes the basic role of finance in a corporation and how management decisions are made from the financial perspective.

Description of the Examination

The Principles of Finance examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Fundamental Finance and Accounting Concepts	25
II. Economics	5
III. Risk Management	25
IV. Quantitative Financial Analysis	35
V. Legal and Social Environment	10

The Principles of Finance examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Principles of Finance examination contains a total of 60 items. The scored items are representative of the content specifications outlined previously. The Principles of Finance examination was introduced on January 30, 2013. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE PRINCIPLES OF FINANCE EXAMINATION		
	EXAMINATION FORM	
	C	D
Number of examinees	98	93
Number of items	60	60
Average of percent-correct scores	59.71	59.70
Standard deviation of percent-correct scores	12.85	13.65
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.60	.60
Average item-total correlation (point-biserial)	.26	.28
Proportion of item-total correlations less than .15	.26	.16
Internal consistency (KR20)	.79	.82
Standard error of measurement in percent-correct score units	5.85	5.86

PRINCIPLES OF MANAGEMENT (251)

The Principles of Management examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level course in the Principles of Management. The content of the exam corresponds with introductory course offerings such as Introduction to Management, Business Organization and Management, and Fundamentals of Management.

The examination tests for knowledge of facts and terminology, and understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of fundamental management theories and examining the manager's role in today's global business world, the role of managers in the business environment, strategies for planning and decision making, organization and controls, leadership, motivation and staffing, and managing change. This examination will review the evolution of management thought, function and practice and will stress current approaches and emerging concepts.

Description of the Examination

The Principles of Management examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Management and Organizations	10
II. Organization and Human Resources	20
III. Functional Aspects of Management	30
IV. Operational Aspects of Management	20
V. International Management and Contemporary Issues	20

The Principles of Management examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Principles of Management examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. The Principles of Management examination was introduced on July 1, 2012. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE PRINCIPLES OF MANAGEMENT EXAMINATION	
	EXAMINATION FORM
	B
Number of examinees	149
Number of items	120
Average of percent-correct scores	66.34
Standard deviation of percent-correct scores	9.38
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.66
Average item-total correlation (point-biserial)	.18
Proportion of item-total correlations less than .15	.39
Internal consistency (KR20)	.79
Standard error of measurement in percent-correct score units	4.28

PRINCIPLES OF MARKETING (252)

The Principles of Marketing examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level course in marketing. The content of the exam corresponds with introductory course offerings such as Introduction to Marketing, Marketing, Basic Marketing, Marketing Concepts, and Marketing Management.

The examination tests for knowledge of facts and terminology, an understanding of marketing concepts and theories, and the examinee's ability to apply this knowledge and understanding within organizational and societal environments. Major topics include marketing strategies and mix, market segmentation, factors affecting the marketing environment, market research, consumer and business buyer behavior, target marketing, product differentiation and positioning, product branding, pricing strategies, the purchase decision process, marketing channels, promotion mix strategies, online and global marketing, marketing ethics, and the marketing plan.

Description of the Examination

The Principles of Marketing examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Introduction to Marketing	10
II. The Marketplace and Consumers	25
III. Marketing Strategy and Mix	45
IV. Global Marketing	10
V. Social Responsibility and Marketing Ethics	5
VI. The Marketing Plan	5

The Principles of Marketing examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Principles of Marketing examination contains a total of 120 items. The scored items are representative of the content specifications outlined previously. New forms of the Principles of Marketing examination were introduced om August 5, 2019. We are presently acquiring data for statistical analysis.

QUANTITATIVE ANALYSIS (437)

The Quantitative Analysis examination measures knowledge and understanding of material typically taught in a three-credit, undergraduate, upper-level, one-semester course in Quantitative Analysis. The content of the exam covers the major quantitative techniques and their application to the analysis of business problems. Topics include estimation, hypothesis testing, linear and multivariate regression and correlation, decision theory, linear programming, time series and supply chain management, transportation and assignment models, and inventory management and queuing theory models. A solid grounding in statistics is required.

Description of the Examination

The Quantitative Analysis examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Decision Making Overview and Risk Analysis	10
II. Decision Analysis	15
III. Queuing Theory	10
IV. Integer Programming and Project Scheduling	10
V. Linear Programming	15
VI. Sensitivity Analysis	15
VII. Linear Programming Applications	15
VIII. Distribution and Network Models	10

The Quantitative Analysis examination has thus far been developed, scored, and evaluated using CTT methods. Examinees' scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The scored items are representative of the content specifications outlined previously and were selected based on the adequacy of their psychometric properties. We are presently acquiring data for statistical analysis.

WORKPLACE COMMUNICATION WITH COMPUTERS (256)

The Workplace Communication with Computers examination measures knowledge and understanding of material typically taught in a one-semester, three-credit, lower-level course in Workplace Communications Using Computers. The content of the exam corresponds with introductory course offerings such as Business Communications, Workplace Communications, Introduction to Communication Technology for Business, and Managerial Communications.

The examination tests for the knowledge of facts and terminology, understanding of concepts and theories, and the examinee's ability to apply this knowledge and understanding in an analysis of business communications principles, including the foundations of communication, effective and ineffective teams, interpersonal communication, and diversity within the business environment; how to write effective business messages; how to select the most appropriate technologies to enhance communication within organizations; how to use various message patterns effectively, how to use visual aids and supporting data to enhance communications, and how to use oral and online presentations to improve business communications.

Description of the Examination

The Workplace Communication with Computers examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Principles of Business Communications	20
II. Writing in a Business Environment	25
III. Technology and Message Patterns	25
IV. Supporting Data and Visual Aids	15
V. Oral and Online Presentations	15

The Workplace Communication with Computers examination has thus far been developed, scored, and evaluated using CTT methods. Examinee's scores are percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Workplace Communication with Computers examination contains a total of 100 items. The scored items are representative of the content specifications outlined previously. New forms of the Workplace Communication examination were introduced on August 26, 2019. We are presently acquiring data for statistical analysis.

PSYCHOMETRIC INFORMATION FOR
UEXCEL EXAMINATIONS IN

Education

LITERACY INSTRUCTION IN THE ELEMENTARY SCHOOL (565)

The Literacy Instruction in the Elementary School examination measures knowledge and understanding of material typically taught in a two-semester sequence of upper-level courses in elementary school reading and writing instruction. The content of the examination is drawn from that commonly included in courses with titles such as Reading in the Elementary School, Writing in the Elementary School, Teaching of Literacy, Methods of Teaching Reading, and Reading and Language Arts. The examination requires a knowledge of content that would be included in such lower-level education courses as Foundations of Education, Educational Psychology, Orientation to Teaching, and Instructional Planning. A knowledge of child development, some learning theory, and instructional planning and implementation, as well as practicum experience, would be helpful in learning the content of the examination.

The examination tests for a knowledge and understanding of the fundamental concepts and principles guiding elementary school literacy instruction; for the ability to apply, synthesize, and evaluate information; and for the ability to read critically.

Description of the Examination

The Literacy Instruction in the Elementary School examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Theoretical Frameworks	15
II. Emergent Literacy/Beginning Reading	15
III. Identifying and Understanding Words	15
IV. Constructing Meaning: Comprehension and Response	15
V. Writing Instruction	15
VI. The Teacher as Reflective Decision Maker: Implementing a Classroom Literacy Program	15
VII. Assessment and Evaluation	10

The Literacy Instruction in the Elementary School examination is developed, scored, and evaluated using CTT methods. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Literacy Instruction in the Elementary School examination contains a total of 129 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Literacy Instruction in the Elementary School examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of December 3, 2018 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE LITERACY INSTRUCTION IN THE ELEMENTARY SCHOOL EXAMINATION

	EXAMINATION FORM	
	C	D
Number of examinees	587	564
Number of items	129	129
Average of percent-correct scores	69.51	69.01
Standard deviation of percent-correct scores	13.39	13.47
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.69	.69
Average item-total correlation (point-biserial)	.28	.29
Proportion of item-total correlations less than .15	.07	.04
Internal consistency (KR20)	.89	.90
Standard error of measurement in percent-correct score units	4.36	4.35

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM C	FORM D
	%	%
A	21	16
B	29	27
C	36	40
F	14	17

PSYCHOMETRIC INFORMATION FOR
UEXCEL EXAMINATIONS IN

Nursing: Associate Level

FUNDAMENTALS OF NURSING (403)

The Fundamentals of Nursing examination measures knowledge and understanding of material that corresponds to a three-credit course in fundamentals of nursing in an associate degree nursing program. The examination requires a basic knowledge of anatomy and physiology, chemistry, and mathematics. Questions on the examination focus on the health problems of adult patients that are commonly encountered by associate degree nurses in hospital settings.

The examination requires examinees to demonstrate knowledge and understanding of the theoretical framework for each content area as well as the ability to apply this knowledge through use of the nursing process.

Description of the Examination

The Fundamentals of Nursing examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. The Profession of Nursing	8
II. Communication and Interpersonal Relations	10
III. Protection and Promotion of Safety	25
IV. Comfort, Rest, and Activity	15
V. Nutrition	10
VI. Elimination	11
VII. Oxygenation	10
VIII. Fluid and Electrolyte Balance	11

The Fundamentals of Nursing examination is developed, scored, and evaluated using IRT methods of analysis. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Fundamentals of Nursing examination contains a total of 150 items. The scored items are representative of the content specifications outlined previously, and selected based on the adequacy of their psychometric properties. The scored items are representative of the content specifications outlined previously. New form of Fundamentals of Nursing was introduced on March 2, 2020. The following table provides some basic psychometric information about one current form of the examination. More information will be provided once we have sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR FUNDAMENTALS OF NURSING EXAMINATION

	EXAMINATION FORM
	S
Number of examinees	103
Number of items	150
Average of percent-correct scores	66.52
Standard deviation of percent-correct scores	9.52
CLASSICAL TEST THEORY SUMMARY	
Average item difficulty	.66
Average item-total correlation (point-biserial)	.17
Proportion of item-total correlations less than .15	.41
Internal consistency (KR20)	.81
Standard error of measurement in percent-correct score units	4.16

PSYCHOMETRIC INFORMATION FOR
UEXCEL EXAMINATIONS IN

Nursing: Baccalaureate Level

ADULT NURSING (554)

The Adult Nursing examination measures knowledge and understanding of the health and nursing care of young, middle-aged, and older adults. It is based on material that corresponds to an upper-level, eight-credit sequence of courses in medical-surgical nursing or adult nursing at the baccalaureate level.

The examination tests for a knowledge and understanding of the physiological, developmental, psychological, social, cultural, and spiritual dimensions of health and illness in adults. It tests for the ability to use the nursing process in a variety of settings to deliver health care to adults with actual or potential health problems.

Description of the Examination

The Adult Nursing examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Core Concepts	10
II. Nursing Management of Clients with Cardiovascular and Hematologic System Dysfunction	10
III. Nursing Management of Clients with Respiratory System Dysfunction	10
IV. Nursing Management of Clients with Urinary System Dysfunction	10
V. Nursing Management of Clients with Reproductive System Dysfunction	10
VI. Nursing Management of Clients with Endocrine System Dysfunction	10
VII. Nursing Management of Clients with Gastrointestinal System Dysfunction	10
VIII. Nursing Management of Clients with Sensory System and Neurological System Dysfunction	10
IX. Nursing Management of Clients with Musculoskeletal System Dysfunction	10
X. Nursing Management of Clients with Immune System and Integumentary System Dysfunction	10

The Adult Nursing examination is developed, scored, and evaluated using IRT methods. Examinees' scores are ability estimates and cut-scores for letter grades are set on the ability (θ) scale. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

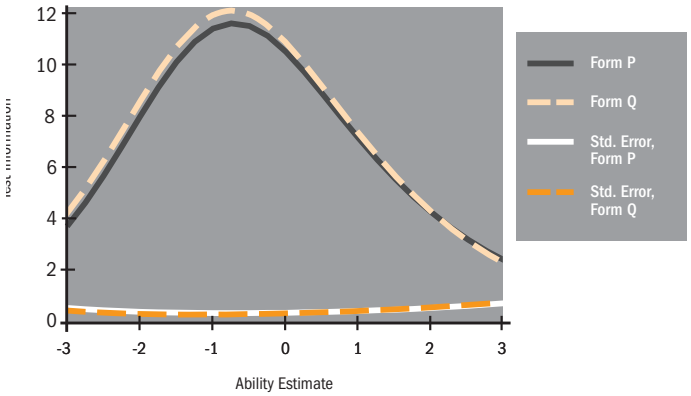
The Adult Nursing examination contains a total of 130 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables and graph provide a summary of psychometric information for two current forms of the Adult Nursing examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of October 9, 2008 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE ADULT NURSING EXAMINATION		
	EXAMINATION FORM	
	P	Q
Number of examinees	1136	1166
Number of items	130	130
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.69	.71
Average item-total correlation (point-biserial)	.24	.22
Proportion of item-total correlations less than .15	.15	.19
Internal consistency (KR20)	.85	.84

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE		
GRADE	FORM P	FORM Q
	%	%
A	9	9
B	34	40
C	39	36
F	19	15

Test Information Functions for Alternate Forms

Adult Nursing (554)



MATERNAL & CHILD NURSING (BACCALAUREATE) (457)

The Maternal & Child Nursing (baccalaureate) examination measures knowledge and understanding of health and illness as it pertains to maternal and child nursing and to the psychodynamics of family functioning. It is based on material taught in an upper-level sequence of eight-credit courses in maternal and child nursing at the baccalaureate level.

The examination tests for a knowledge of the physical, emotional, and psychosocial concepts relevant to the health care of the childbearing and childrearing family. It tests for the ability to utilize the nursing process in the delivery of health care to the individual and family in a variety of settings, and for the ability to apply principles of normal growth and development to nursing management.

Description of the Examination

The Maternal & Child Nursing (baccalaureate) examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Nursing Management of the Childbearing Family and the Childrearing Family	10
II. Nursing Management of the Normal Pregnancy	25
III. Nursing Management of the Family with a High-Risk Pregnancy and the Family with a High-Risk Neonate	20
IV. Nursing Management of the Well Child and Family	20
V. Nursing Management of the Ill Child and Family	25

The Maternal & Child Nursing (baccalaureate) examination is developed, scored, and evaluated using CTT methods. Examinees' scores are standard scores with a population mean of 50 and standard deviation of 10. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Maternal & Child Nursing (baccalaureate) examination contains a total of 160 items. The scored items are representative of the content specifications outlined previously, and were selected based on the adequacy of their psychometric properties. The following tables provide a summary of psychometric information for two current forms of the Maternal & Child Nursing (baccalaureate) examination. This information is based on the performance of examinees taking this examination for credit nationwide, through the time period of October 1, 2001 to August 31, 2021.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE MATERNAL & CHILD NURSING (BACCALAUREATE) EXAMINATION

	EXAMINATION FORM	
	P	Q
Number of examinees	1609	1617
Number of items	160	160
Average of percent-correct scores (and standard scores)	72.39(54.50)	73.17(55.26)
Standard deviation of percent-correct scores (and standard scores)	9.15(8.75)	8.94(8.56)
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.72	.73
Average item-total correlation (point-biserial)	.17	.17
Proportion of item-total correlations less than .15	.32	.32
Internal consistency (KR20)	.83	.83
Standard error of measurement in percent-correct score units	3.56	3.52

PERCENTAGE OF EXAMINEES ACHIEVING EACH LETTER GRADE

GRADE	FORM P	FORM Q
	%	%
A	57	61
B	22	22
C	8	7
F	13	10

PSYCHIATRIC/MENTAL HEALTH NURSING (503)

The Psychiatric/Mental Health Nursing examination measures knowledge and understanding of the theoretical/therapeutic foundations for psychiatric mental health nursing practice, and tests the application of this knowledge and understanding to the nursing care of clients, using the nursing process as an organizing framework.

The examination is based on material that corresponds to an upper-level, eight-credit sequence of courses in psychiatric/mental health nursing at the baccalaureate level.

Description of the Examination

The Psychiatric/Mental Health Nursing examination was developed based on the following test specifications (see content guide for details).

CONTENT AREA	PERCENT OF EXAMINATION
I. Basic Concepts and Foundations for Psychiatric/Mental Health Nursing	15
II. Therapeutic Approaches in Psychiatric Nursing Care	25
III. Nursing Care of Clients with Alterations in Psychosocial Adaptation	45
IV. Psychiatric/Mental Health Nursing of Special Populations	15

The Psychiatric/Mental Health Nursing examination is developed, scored, and evaluated using CTT methods of analysis. Examinees' scores are calculated as percent-correct scores. Letter grades and diagnostic score reports are provided to examinees.

Psychometric Information

The Psychiatric/Mental Health Nursing examination contains a total of 160 items. The scored items are representative of the content specifications outlined previously and were selected based on the adequacy of their psychometric properties. The Psychiatric/Mental Health Nursing examination was introduced on September 24, 2018. The following table provides some basic psychometric information about two current forms of the examination. More information will be provided once we have a sufficient volume of examinees.

SUMMARY OF PSYCHOMETRIC INFORMATION FOR THE PSYCHIATRIC/MENTAL HEALTH NURSING EXAMINATION

	EXAMINATION FORM	
	R	S
Number of examinees	66	80
Number of items	160	160
Average of percent-correct scores (and standard scores)	68.38	70.84
Standard deviation of percent-correct scores (and standard scores)	10.89	9.61
CLASSICAL TEST THEORY SUMMARY		
Average item difficulty	.68	.71
Average item-total correlation (point-biserial)	.22	.19
Proportion of item-total correlations less than .15	.34	.41
Internal consistency (KR20)	.87	.85
Standard error of measurement in percent-correct score units	3.86	3.75

The main concepts for item response theory (IRT) and classical test theory (CTT) are defined in an earlier section of this Handbook. This appendix describes in more technical detail the methods that were used for deriving the psychometric information provided in this *Handbook*. A list of references is also provided for further information about IRT and CTT methods.

Psychometric Methods for Item Response Theory (IRT)

All primary IRT computations were carried out using the statistical program BILOG-MG™. The three-parameter model was specified in all cases where IRT was used. Supplemental procedures were carried out using SPSS®.

The test information functions displayed in the graphs were created by computing the test information at each 0.25-unit increment between –3.00 and +3.00 along the ability (θ) scale, then plotting the curves through these points. The standard errors of ability estimates displayed in the figures were computed by taking the reciprocal of the square root of the test information value at each 0.25-unit.

Psychometric Methods for Classical Test Theory (CTT)

All CTT computations were carried out using SPSS® and Microsoft™ Excel™ statistical programming.

For objectively scored examinations, the mean item-difficulty statistics listed in the tables were computed by first determining the proportion of examinees answering each scored item correctly on a test form, then taking the mean of these proportions. Likewise, the mean item-total correlations were computed by determining the point-biserial correlation coefficient for each scored item (corrected for overlap with the total scores), then taking the mean of these coefficients. The proportions of these item-total correlations that fell below 0.15 were also determined.

For the objectively scored examinations, test reliability was computed using the Kuder-Richardson formula 20 (KR20). This statistic measures the internal consistency of the scored items which comprise the examination. The standard errors of measurement were derived from a combination of this reliability coefficient and the standard deviation of observed scores on each form.

For extended response examinations, two reliability coefficients were computed. First was the internal consistency of the items, evaluated using coefficient alpha (α). This is a generalization of the KR20 coefficient to accommodate items that have multiple scale points rather than dichotomous scoring. The second type of reliability measures the consistency among raters, or inter-rater reliability. This statistic was evaluated using an intra-class correlation coefficient appropriate for this particular type of data (see ICC [1, k] in Shrout & Fleiss, 1979). For each examinee, total scores were computed across items for each rater, and inter-rater consistency among these total scores was the focus of the intra-class correlation analysis. The standard errors of measurement for extended response examinations were derived from a combination of the inter-rater reliability coefficient and the standard deviation of observed scores on each form.

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UEXCEL EXAMINATIONS BY SCORING METHOD AND DEVELOPMENT MODEL

Objectively scored examinations using Classical Test Theory

ARTS AND SCIENCES

Basic Genetics (250)
Bioethics: Philosophical Issues (359)
Calculus (150)
Contemporary Mathematics (100)
Cultural Diversity (545)
Earth Science (360)
Foundations of Gerontology (407)
Interpersonal Communication (417)
Introduction Macroeconomics (258)
Introduction Microeconomics (257)
Introduction to Music (362)
Introduction to Philosophy (363)
Introduction to Psychology (101)
Introduction to Sociology (105)
Juvenile Delinquency (364)
Life Span Developmental Psychology (583)
Microbiology (558)
Organizational Behavior (353)
Physics (140)
Political Science (170)
Precalculus Algebra (116)
Psychology of Adulthood and Aging (355)
Science of Nutrition (259)
Social Psychology (357)
Spanish Language (102)
Statistics (210)
Weather and Climate (171)
World Conflicts Since 1900 (367)
World Population (358)

BUSINESS

Business Ethics (323)
Business Law (255)
Financial Accounting (253)
Human Resource Management (351)
Labor Relations (352)
Managerial Accounting (254)
Operations Management (420)
Organizational Behavior (353)
Principles of Finance (350)
Principles of Management (251)
Principles of Marketing (252)
Quantitative Analysis (437)
Workplace Communication with Computers (256)

EDUCATION

Literacy Instruction in the Elementary School (565)

HEALTH SCIENCES

Foundations of Gerontology (407)
Human Resource Management (351)
Psychology of Adulthood & Aging (355)

NURSING: BACCALAUREATE DEGREE

Maternal and Child Nursing (457)
Psychiatric/Mental Health Nursing (503)

Objectively scored examinations using Item Response Theory

ARTS AND SCIENCES

Abnormal Psychology (459)
Anatomy & Physiology (506)
Ethics: Theory and Practice (484)
Pathophysiology (354)
Research Methods in Psychology (356)

BUSINESS

Ethics: Theory and Practice (484)

NURSING: ASSOCIATE DEGREE

Fundamentals of Nursing (403)

NURSING: BACCALAUREATE DEGREE

Adult Nursing (554)

Extended response examinations

ARTS AND SCIENCES

English Composition (434)
College Writing (110)

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