



**North Carolina Agricultural and Technical State University
Division of University Studies
Analytical Reasoning**

University Studies is a bold, new approach to general education. Until now, general education utilized distribution requirements, which asked students to choose randomly among a list of introductory courses in the humanities, social and natural sciences. Exposing students to a wide variety of subject matter and critical approaches was the primary objective of this educational tradition. Thus, little attention was paid to the ways students might synthesize or profit from the learning objectives and outcomes of different disciplines. As a result, students proceeded into their major studies with few identifiable skills and abilities gleaned from their general education experience. University Studies was conceived to redress these problems.

The rationale for an interdisciplinary approach to general education stems from the acknowledged complexities of the contemporary world. The problems facing modern humanity are rarely if ever understood using the perspectives and tools of a single discipline. Given that, University Studies maintains that critical thinking, logic, writing, humanistic and artistic inquiry, as well as the social and natural sciences are best understood via interdisciplinary methods. Indeed many interdisciplinary fields, such as African American Studies, Science and Technology Studies, Cultural Studies, and Women's Studies developed due to either the unwillingness or the inability of the traditional disciplines to address the issues posed in these bodies of scholarship.

All University Studies [UNST] courses are interdisciplinary. This means that they combine the intellectual methods and subject matter from a variety of disciplines in order to help students learn critical thinking and problem solving. UNST courses are interconnected in such a manner that they can guarantee that a student will be exposed to specified learning objectives that address real-life concerns. During the first year, students will learn skills for critical engagement; during the second and third years, students will apply these newly honed skills in theme-based courses; in the senior year, students will exercise the skills and knowledge they have gained in a capstone experience and service-learning activity. If undertaken seriously and with intentionality, UNST students can expect to emerge with a set of useful intellectual tools that will allow them to engage effectively a dynamic and complex world.

COURSE DESCRIPTION

The course engages students in scientific, quantitative, and logical reasoning processes to prepare them to interpret and solve problems encountered in everyday life. Students will consider concepts from logic and the scientific disciplines, including life, social, and physical sciences. The scientific method and a variety of analytical approaches are explored, including numerical, graphical, verbal / logical, and algebraic reasoning.

NCATSU GENERAL EDUCATION OBJECTIVES

5. Use Analytical thinking skills to evaluate information critically.
6. Apply multiple modes of inquiry, including quantitative and qualitative analysis, to formulate, describe, evaluate, and solve problems.
7. Apply scientific reasoning skills to model natural, physical, social, and aesthetic phenomena using multiple modes of inquiry.
8. Use a wide range of disparate information and knowledge to draw inferences, test hypotheses, and make decisions.

LEARNING OBJECTIVES

In this course students will:

- (1) Learn to think analytically and critically about the nature of statements and arguments.
 - a. Identify conclusions, supporting reasons, and evidence in written and oral passages.
 - b. Identify and understand differences between arguments and other forms of communication.
 - c. Understand the differences between inductive and deductive forms of reasoning.
- (2) Learn to interpret statistical data and concepts (i.e., mean, median, mode, randomization, sample size, margin of error, standard deviation, statistical significance, etc.), including data presented in graphs, charts, or tables, in various forms of documents and discourse.
- (3) Understand and compute probability, conditional probability, expected value, and odds.
- (4) Understand and compute simple interest, compound interest, and loans as well as other forms of quantitative reasoning that affect daily life.
- (5) Recognize common reasoning errors in arguments that employ inductive reasoning.
- (6) Understand the basic structure of scientific method.
 - a. Understand hypothetical reasoning and the differences and relationships among observation, hypothesis formation,

- the testing of hypotheses, and review.
- b. Understand the nature of analogical reasoning.
- c. Learn methods for analyzing arguments that employ analogical reasoning for the purpose of identifying causal connections.
- d. Understand the difference between scientific reasoning and superstition: evidence, objectivity, integrity.

REQUIRED TEXT:

Analytical Reasoning, University Studies 130. Patrick J. Hurley, Harold Parks, Charles P. McKeague and Stephen S. Carey. Thomson Wadsworth, 2008, 2007.

GRADING

Grades for this course will be determined according to a method known as “curving.” A grading curve assumes that a large group of students will perform in predictable or normal ways, resulting in a distribution of scores that can be graphed such that it looks like a “bell curve” (see pp. 266-73 or pp. 446-71 of the *Analytical Reasoning* course textbook for discussions of normal curves). In a statistically normal group, there will be a relatively small but equal number of students who perform very well and very poorly, while the majority of students will perform at or near a mid-point. Grades are assigned by dividing the distribution into five sections that correspond to excellent performance (A), superior performance (B), average performance (C), below average performance (D), and very low performance (F). In this method of grading, grades are assigned relative to the performance of all other students in the group. For this class, the group will consist of all students taking *Analytical Reasoning* during the **spring semester, 2008** with the exception of the honors classes. Each student will be assigned a grade based on her or his performance in relation to all other students taking *Analytical Reasoning*, regardless of the section. Each exam will be curved using an adjusted mean and standard deviation. The mean of an exam will be a “C”, and the standard deviation will be one letter grade (10 percentage points). As you will learn in this course “standard deviation” is a measure of the spread of the “bell shaped curve”.

The grading curve will be adjusted to a standard scale: 100-90 = A; 89-80 = B; 79-70 =C; 69-60 = D; 59—F.

Summative Grades will be determined according to the following:

| | |
|-----------------------|------------|
| Examination #1 | 10% |
| Examination #2 | 20% |
| Examination #3 | 20% |
| Examination #4 | 25% |
| Homework | 20% |
| Participation | 5% |

QUIZZES AND HOMEWORK

Quizzes and homework may be administered through Blackboard. In order to avoid problems with Blackboard, please follow these steps:

- When completing online assignments, try whenever possible to login from one of the on-campus computer labs or Bluford Library, which has wireless laptops and numerous computer stations available. This will help you avoid network problems.
- Go to “Course Information” to locate links to quizzes. Once you begin a quiz, you cannot open a new browser window to search for information. Doing so will cause the quiz to crash and you will be “locked-out” of the quiz. Also, do not hit the “Save” button. After inputting your answers, turn in your work by hitting the “Submit” button.
- If you encounter a technical problem during a quiz, you will see a small lock icon where you would normally see your quiz score (in the online grade book). Your instructors can reset your account so that you can re-take the quiz. **Pay attention to your instructors’ in-class and Blackboard announcements on the days before and during the quizzes.**
- Your quizzes will be available from 8:00 A.M. until 8:00 P.M. If a student does not attempt a quiz within the window of availability, she or he will not be allowed to make it up. There are no make-up quizzes in this course except under extraordinary circumstances (which require written documentation).

ACADEMIC DISHONESTY POLICY

Academic honesty is absolutely essential. Cheating, plagiarism, **sharing of clickers** or other academic misconduct will not be tolerated. If you are caught cheating, you will not pass this course and will be subject to any and all penalties specified in the student honor code. If a student is found cheating, she or he will receive an “F” for that assignment. If a student is found cheating a second time, she or he will receive an “F” for the course. PLEASE NOTE THAT USING A “CLICKER” FOR A FRIEND CONSTITUTES

ACADEMIC DISHONESTY. HAVING TWO “CLICKERS” IN CLASS WILL BE INTERPRETED AS ACADEMIC DISHONESTY. See pages 78-80 of the Undergraduate Bulletin 2006-2008 for the NCATSU Academic Dishonesty Policy.

ATTENDANCE

Regular attendance and punctuality are mandatory in all UNST courses. Attendance will be taken for each class. Tardiness will not be tolerated. Students who are not present when attendance is taken are considered absent for the day. **Students having four unexcused absences will automatically receive an “F” for the course.** Absent or tardy students are responsible for any missed class work, including any changes to the syllabus or assignments announced in class. In short, absences and tardiness will diminish your grade. If you suffer prolonged illness or misfortune, you should consider dropping the course. Persistent tardiness and failure to observe established classroom etiquette will lead to failure of the course. Student athletes must submit a schedule of days they will be absent within the first week of classes.

Student-athletes are held to the same attendance and performance expectation as non-athletes. Hence, they should coordinate their course schedules so that team practices and games do not conflict with class meetings and / or exams. Student-athletes should identify themselves to their professors and instructors, submit a schedule of days they will miss class as well as the name and contact information for their coach within the first week of classes. University Studies will follow the Department of Athletics class attendance policy, which states:

- **First Unexcused Absence** – The student-athlete’s coach will be notified.
- **Second Unexcused Absence** – Ms. Dee Todd, Director of Intercollegiate Athletics will be notified. The student-athlete will be required to have a conference with Ms. Todd or her designee.
- **Third Unexcused Absence** – The student athlete will be suspended for one contest. IF the student-athlete is not currently in season, the suspension will apply to the following season.
- **Fourth Unexcused Absence** – The student-athlete’s scholarship is subject to non-renewal.

COURSE MATERIALS

- **Books:** Serious scholarship requires procurement of essential course materials. Students will purchase all books and materials required for UNST courses within the first two weeks of the semester. Sharing of books thereafter is prohibited.
- **Blackboard:** Students are required to be familiar with the use of Blackboard. Information, assignments, tests and quizzes will be given on Blackboard; therefore, students must be able to navigate the site successfully in to do well in the course. If you are having problems with Blackboard, it is the student’s responsibility to make the professor aware of your problems.

EDUCATIONAL ETIQUETTE

Students will demonstrate respect for their professors and colleagues. Any behavior that distracts (e.g., eating, talking while others are talking, etc.) or is disrespectful (inattention, personal attacks, studying for other courses during class, etc.) is unacceptable. Differences of opinion should be met with intellectual curiosity and rigor rather than insult, contumely, or discord.

All cell phones, pagers, and personal communication devices must be turned off for the duration of the class period. Students who fail to comply with this rule will be asked to leave the class and will be marked absent. Campus security will be asked to escort those students from the classroom who fail to leave as requested.

There will be no eating or drinking in class (other than bottled water).

Student success in this course depends upon the development of scholarly and collegial habits. Active participation in class discussion and group work is mandatory. Collegial responsibility and respect are also compulsory.

EMAIL POLICY

Official correspondence from faculty, instructors, and graduate assistants will use the NCAT email address. Students are responsible for the information received and are required to monitor their email accounts on a regular basis.

All faculty, instructors, and graduate assistants will reply to legitimate email inquiries from students within 48 hours with the exception of weekends or university holidays. If you do not receive a reply within this period, please resubmit your question(s) or phone your instructor. Leave a message if necessary.

In accordance with the Aggie Pride Code, students should consistently communicate and behave in a manner that displays integrity, honesty, and sound character when using email to communicate with faculty, instructors, or graduate teaching assistants.

Each email message must include the course name and number, section number, and a concise and clear statement of purpose in the subject line otherwise it is likely to be deleted, along with spam messages and messages potentially containing viruses. You must also type your name, as it appears on the course roster at the end of your message.

Please make sure you consult the course outline/syllabus, other handouts, and the course website BEFORE submitting inquiries by email.

When a question cannot be easily or briefly answered by email, your instructor will simply indicate that the student should see him, her, or the appropriate TA during office hours.

Email should **NOT** be seen as an alternative to meeting with your instructor or the TA during office hours. Nor should email be used as a mechanism to receive private tutorials (especially prior to tests) or to explain material that was covered in lectures you missed.

TIMELY SUBMISSION OF WORK

All assignments are due on the dates indicated in your syllabus. **No late work will be accepted in any UNST course.** Exceptions will be made only in cases of documented medical or family emergency or religious observance. Please notify your professor by email *before the assignment is due* should an acceptable absence occur. Employment, childcare or other academic pressures do not constitute a valid excuse for late work. There is no provision for additional papers or extra credit to substitute for missed course requirements.

OPEN DOOR POLICY

Each of your instructors maintains an open door policy. You are free to visit us during the posted office hours or, if you prefer a different time, arrange an appointment. If you are having a problem with the course, please contact your instructor immediately; problems, unlike fine wines, do not improve with age.

DISABILITIES AND DIFFERENCES

Students with documented learning disabilities or differences should identify themselves to their professor and present appropriate documentation during the first week of classes. No accommodations will be made later in the semester for students who do not identify themselves at the beginning of the course.

Students who need developmental support should ask their professors for extra help or referral. All students should seek the support services of the Writing Center (A-309 GCB; 334-7764) and the Center for Student Success (312 Hodgin Hall; 334-7855).

University Studies 150 Analytical Reasoning

| Dates | Outline of Topics to be Covered | Readings |
|--|---|--|
| January 7-11 | <i>Pretest Introduction: Syllabus, Blackboard, Clickers Arguments, Premises, and Conclusions Recognizing Arguments</i> | Hurley, 1.1, 1.2 |
| January 14-18 | <i>Deduction and Induction</i> | Hurley, 1.3 |
| January 22-25 | Monday, Jan .21: MLK Jr Holiday <i>Validity, Truth, Soundness, Strength and Cogency</i> | Hurley, 1.4 |
| January 28-Feb. 1 | <i>The Components of Categorical Propositions Quality, Quantity, and Distribution</i> January 31-Feb 1 Examination #1 | Hurley, 4.1, 4.2 |
| February 4-8 | <i>The Traditional Square of Opposition Venn Diagrams</i> | Hurley, 4.5, 4.6 |
| February 11-15 | <i>Analogy and Legal and Moral Reasoning</i> | Hurley, 9.1 |
| February 18- 22 | <i>Hypothetical/Scientific Reasoning</i> | Hurley, 9.5 |
| February 25-29 | <i>Science and Superstition</i> Feb. 28-29 Examination #2 | Hurley, 9.6 |
| March 3-7 | Spring Break!!!!!!!!!!!! | |
| March 10-14 | <i>Percent, Decimals, Fractions, Sales Tax, Percent Increase/Decrease ,Simple and Compound Interest</i> | McKeague, 5.1, 5.2, 5.3, 5.4, 5.5, Parks, 13.1, Appendix D |
| March 17-20 (March 18, 3:00-5:00 PM Honors Convocation) | <i>Simple and Compound Interest, Loans, Buying a House</i> Friday, March 21 Holiday | Parks, 13.1,13.2, 13.3 |
| March 24-28 | <i>Graphs and Charts: Organizing and Picturing Data, Comparisons, Enhancement, Distraction, Distortion</i> | Parks, 8.1, 8.2, 8.3 |
| March 31-April 4 | <i>Statistics: Populations, Samples ,and Data; Survey Sampling Methods</i> April 3-4 Examination #3 | Parks, 9.1, 9.2 |
| April 7-11 | <i>Measures of Central Tendency and Variability</i> | Parks, 9.3 |
| April 14-18 | <i>Computing Probabilities in Simple Experiments</i> | Parks, 10.1 |
| April 21-25 | <i>Conditional Probability, Expected Value, and Odds</i> <i>April 24-25 Comprehensive Review Days(Hurley)</i> | Parks, 10.3 |
| April 28-29 | <i>April 28-29Comprehensive Review Days (Parks)</i> | |
| April 29 | Classes End | |
| April 30 | Reading Day | |
| May 1-7 | Final Examination Week | Time and Date is not Negotiable: Please Make Arrangements |

This syllabus is subject to revision as necessary at any time during the semester.

Exam Dates, Including the Final Exam, are not Negotiable: Please Make Arrangements

http://www.ncat.edu/~registra/spring_2008_exam_schedule.htm

This syllabus was revised 4-1-08