



Course SCE 5305-501, **Evaluating Research in Science Education**
Professor Cynthia E. Ledbetter, Ph.D.
Term Fall, 2008
Meetings FN 2.306, Thursdays from 5:30 to 8:30 PM

Professor's Contact Information

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Office Location FN 3.308
Email Address ledbeter@utdallas.edu
Office Hours Thursdays from 4:00 to 5:00 PM Voice mail messages are usually retrieved on a weekly basis, and responses may take up to a week depending on travel schedules. Email is generally answered within 24 hours.
Other Information *Note that, for security reasons, UTD personnel will send all official email correspondence only to your UTD email address. UTD will provide a Network ID (netid) linked to an email account. You may forward your UTD email to other personal or business email accounts. See <http://netid.utdallas.edu>. It is your responsibility to check for messages and to ensure that your profile is accurate and complete!*

General Course Information

Pre-requisites, Co-requisites, & other restrictions If you have any concerns about your readiness for this course, please discuss issues with your advisor.

1. Students must be eligible to take graduate courses at The University of Texas at Dallas.
2. Students must know how to and be able to send and receive electronic mail messages.
3. Students must know how to and be able to access and navigate web pages on the Internet.
4. Students must be fluent in Microsoft Office applications (Word, Excel, PowerPoint).
5. Students are expected to have some practical experience teaching and working with students in an educational setting, i.e. one semester teaching experience in science or consent of instructor.
6. Students are expected to have some familiarity with district, state and national guidelines for science education.

Course Description Professor Barry Fraser, in his presidential address at the National Association of Research in Science Teaching conference, commented that educational research was not useful unless it could be translated into practice in classrooms across the world. That's what Evaluating Research in Science Education is all about... Why does anyone conduct research? From the educational researcher's point of view, we are interested in extending the knowledge of our field and in making changes that will enhance the learners' ability to achieve. Why would a teacher want to read research? First, you'll want to know when authors are 'feeding you a line'. Next you'll want to know what has worked in other classrooms and how likely the program is to work with your students. Third, like educational researchers, you want to help your students achieve. What does research mean for the success of our students? As concerned citizens, we want all students, no matter their level in school, to be able to successfully function in our society with an

ability to take care of the rest of us in our old age.

Learning Outcomes The goal of this course is to familiarize students with research in science education. Toward that end, students will be able to:

1. Appropriately search the current body of literature,
2. Critically evaluate relevant research documents, and
3. Formulate an independent research plan based on a formal review of literature.

Students will produce ten high-quality research paper evaluations relevant to an approved research question and a formal review of literature within the genre of science education research.

**Texts,
Readings, &
Materials**

Required Texts

Educational Research: Competencies for Analysis and Applications, 9/E

Gay, L.R., Mills, G.E., & Airasian, P.W.

(ISBN-13:978-0-13-233877-6) Prentice Hall

<http://www.pearsonhighered.com/educator/academic/product/0,3110,013233877,00.html>

Publication Manual of the American Psychological Association: Fifth Edition

American Psychological Association

(ISBN 1-55798-790-4) American Psychological Association

<http://www.apa.org/books/4200061.html>

Required Materials

Internet access. All coursework, reading assignments, and lesson activities will be provided electronically via the World Wide Web; therefore, you must have a reliable connection and updated browser. (You can access the course from any web-based system!) Firefox is recommended and can be downloaded at no cost from <http://www.mozilla.com/en-US/>.

Email account. Individual correspondence will be conducted via electronic mail; therefore, you must have a working email account that can send and receive attachments. UT-Dallas will create an account on enrolment; however, any other address may be used. It is your responsibility to check for messages and to ensure that your UTD profile is accurate and complete!

Required Software. In addition to Internet access, you must have Microsoft Word, Microsoft PowerPoint, and Microsoft Excel (version XP for Windows or v. X for Mac or later version). Teachers and UTD students are eligible for discounts (see <http://www.utdtechstore.com>).

Also, you must have installed the latest releases of Apple's QuickTime Player (see <http://www.apple.com/quicktime/download>) and Adobe's Acrobat Reader (see <http://www.adobe.com/products/acrobat/readstep2.html>) – free downloads!

Suggested Materials

Optional Tools. It is strongly recommended that you have installed and regularly update an online virus scan utility on your system. It is your responsibility to save your work and make backups! Other useful, but not required, applications include Adobe Acrobat and Photoshop, Inspiration (see <http://www.inspiration.com>), and Microsoft FrontPage. A flatbed scanner, digital camera, and printer may also be helpful, but are not necessary to successfully complete this course.

Assignments & Academic Calendar

The course will follow the official UTD academic semester schedule at www.utdallas.edu. Specific procedures and requirements for the content modules and/or projects are detailed in the course. The following outline is intended as a guide only and is subject to change as announced in the course.

<i>Week</i>	<i>Topic(s)</i>	<i>Classes</i>	<i>Due Dates</i>
01	Course Overview and Student Orientation	Aug 21	Aug 28
02	Learning about Learning - Literacy	Aug 28	Sept 4
03	Reviewing Literature and Understanding Research Design	Sept 4	Sept 11
04	Classroom Research and Learning Theory	Sept 11	Sept 18
05	Learning Environments and Qualitative Data	Sept 18	Sept 25
06	Gender Differences and Qualitative Analyses	Sept 25	Oct 2
07	Misconceptions and Descriptive Research	Oct 2	Oct 9
08	Learning and Teaching Styles, and Correlational Research	Oct 9	Oct 16
09	Learning through Hands-on and Causal-Comparative Research	Oct 16	Oct 23
10	Concept Mapping and Experimental Research	Oct 23	Oct 30
11	Transfer of Knowledge and Mixed Methods	Oct 30	Nov 6
12	Alternative Assessment and Research Ethics	Nov 6	Nov 13
13	Position Presentation DUE and Research Study Proposal	Nov 13	Nov 20
14	Final Paper DUE	Nov 20	Dec 4
15	Research Study Proposal DUE and Course Summary	Dec 4	Dec 11

Course Policies

Grading (credit) Required for course completion (*Percentage of final course grade*)

- 10% Class Participation
- 25% Literature Review Paper
- 15% Position Presentation
- 10% Project Assignments
- 15% Research Paper Evaluations
- 10% Textbook/Reading Quizzes
- 10% Discussion Board Postings
- 05% Research Study Proposal
- 00% Final Course Evaluation

Make-up Exams All quizzes must be completed within the week the lesson becomes available unless prior arrangements are made with the instructor.

Extra Credit Not applicable.

Late Work Typically, incomplete grades are not granted for MAT-SE online classes. Any assignments not submitted as required will be counted against a final grade and may result in a failing grade.

If you are unable to complete a task on or before the scheduled due date, it is your responsibility to inform the instructor immediately. Incomplete grades may seriously impact your program studies.

Special Assignments None.

Class Attendance	All lessons must be completed within the required timelines. Participation, e.g., discussions, group work, etc., counts toward your attendance grade.
Citizenship	This is a professional setting; therefore, professional behavior is expected.
Off-Campus Instruction	UT-Dallas has technical support resources available to students, faculty and staff. For technical support, go to http://www.utdallas.edu/ir/elearning/ .
Student Conduct and Discipline	<p>The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, <i>A to Z Guide</i>, which is provided to all registered students each academic year.</p> <p>The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).</p> <p>A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.</p>
Academic Integrity	<p>The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.</p> <p>Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.</p> <p>Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p>

Email Use	The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.
Withdrawal from Class	The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, the instructor cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.
Student Grievance Procedures	<p>Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>.</p> <p>In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.</p> <p>Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.</p>
Incomplete Grades	As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of <u>F</u> .

Disability Services The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:

The University of Texas at Dallas, SU 22
800 West Campbell Road
Richardson, Texas 75080
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

Off-Campus Instruction and Course Activities Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean.

These descriptions and timelines are subject to change at the discretion of the Professor.