

**EDUC 5305**

**Effective Teaching and Learning for 21st Century EC-12 Students**

***Science and Mathematics Education***

Fall 2017

**Instructor(s):** Dr. Karen Allmond

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**Faculty Profile:** <https://mentis.uta.edu/explore/profile/karen-allmond>

**Office Hours:** By Appointment

**Section Information:** EDUC 5305 Section 005

**Time and Place of Class Meetings:** Dynamic, Accelerated Online

**Description of Course Content:**

Students gain understanding of the nature of learning and the purpose of education as the pedagogical foundation to teaching in any discipline. Students develop knowledge of state and national standards and apply these standards vertically and horizontally in preparing high quality teaching and learning experiences. Students gain experience critically analyzing disciplinary content, instructional models, lessons, curricula, and research literature. Students learn to construct and test instructional models using activities that focus attention on diversity, authentic assessments, intellectual, social and emotional development, interdisciplinary connections, and technology. Must be taken prior to EDUC 5309.

**Student Learning Outcomes:**

1. To gain understanding of the *nature of science*, the *purpose of education*, and the *nature of learners* to help students learn in ways consistent with these research-based foundations of teaching and learning science and mathematics.
2. To gain understanding of the unique qualities of students in terms of intellectual and social development, so we may be better prepared to accommodate to their learning needs.
3. To develop in-depth knowledge of the theoretical underpinnings and practical implementation of the inquiry model known as the learning cycle/5E as directed by our National Standards (NSTA, NCTM) and state education standards in preparing high quality teaching and learning experiences for students.
4. To gain experience in critically analyzing science and mathematics content, lessons and curricula, and education literature (research articles, practitioner articles, Internet sites), for the selection and/or modification of appropriate and meaningful learning experiences for students.
5. To construct and share original standards-based, inquiry-based curricula (3-phase learning cycle or 5E) for students based on science and mathematics activities abstracted from various sources including texts, laboratory books, and the Internet; and in these lessons, effectively incorporate attention to diversity, authentic assessments, children’s intellectual, social and emotional development, integration with other school subjects, and technology.
6. To critique, reflect upon, and revise originally developed inquiry-based, standards-based curricula for K-12 students for the improvement of teaching effectiveness.
7. To become familiar with national and state science and mathematics associations as well as research and teaching resources in science and mathematics education to begin developing a foundation for leadership, professional growth, and teaching enhancement.
8. To read, examine, and understand science and mathematics education research and generate ideas for Classroom Research to inform teaching and learning effectiveness.

**Required Textbooks and Other Course Materials:**

Note: Texts can be ordered online; try your favorite distributor (e.g., Amazon.com or Barnes & Noble) or the [UTA Bookstore](http://www.bkstr.com/Home/10001-10645-1):

*Required Textbook:*

* Marek, E. A., & Cavallo, A. M. L. (1997). *The Learning Cycle: Elementary School Science and Beyond.* Portsmouth, NH: Heinemann.
* *Tk20 Data Management System* – Need to purchase once at the beginning of the program (EDUC 5305 is the first course), to be used throughout the program. See more description at the (\*) below. <https://www.uta.edu/coed/academics/tk20/index.php>
* Additional Readings are included within Learning Modules of the Course Blackboard Site

**Descriptions of major assignments and examinations:**

Students in this course will engage in and complete four distinct *assessment activities* that will be used to measure the attainment of course concepts. These assessment activities are *Assignments, Discussions,* *Reflection Journals* and *Tests*. An overview of these assessment activities are presented below. Detailed instructions and scoring rubrics for all assignments are included in the module for that assessment activity. The summary of grade distribution for assignments, discussions and reflections is as follows:

Assignments: 25%

Discussions: 25%

Reflection Journals: 25%

Tests: 25%

**Total Grade: 100%**

**Grading:**

The points earned will be transformed to percentages/100. The grading system as per UTA policy is as follows.

A = 90 – 100

B = 80 – 89

C = 70 – 79

D = 60 – 69

F = Below 60

**\*Tk20 Data Management System:**

You will be using Tk20, a comprehensive data management system, and you must purchase it. The College of Education has adopted Tk20 to provide us with powerful tools to manage our growth and streamline our processes to enable us to meet your needs more efficiently and effectively. The set of Tk20 tools that is required as a course text is called Tk20 HigherEd. We understand that textbooks and materials can be expensive, and we strive to not create an unnecessary financial burden when we select textbooks for courses. Tk20 is a purchase that you will use throughout your program, but you purchase it once. The following listing provides key details about the use of Tk20 in your program of study.

* ​Tk20 will be the place where you submit key performance artifacts and build your academic performance portfolio.
* Tk20 also serves as the centralized location for submitting program forms and field placement documents.
* Tk20 will help ensure continuous quality of programs and preparation, which will result in a better experience for you and increase the value of the degrees and certifications you complete here.
* For designated key assessment assignments, you must submit your work in both Tk20 and in Blackboard to receive credit.
* It is best to purchase Tk20 during the initial weeks of your first course so that you have access to Tk20 for submitting work on time.
* You will not be penalized for any Tk20 technical problems that cannot be avoided, but you must have access to TK20 so that you can submit work once any technical delays are addressed.
* On-line tutorials and training materials have been organized to orient you to the Tk20 system, and information is provided to address questions you have and how to purchase Tk20: <https://www.uta.edu/coed/academics/tk20/index.php> .​

**Professional Dispositions:**

Each student/candidate in the College of Education at UTA will be evaluated on Professional Dispositions by the faculty and staff in each professional education course per semester. These dispositions are identified as essential for a highly-qualified professional. Instructors and program directors will work with students/candidates rated as “unacceptable” in one or more stated criteria. The student/candidate will have an opportunity to develop a plan to remediate any digressions. If digression(s) are not, or cannot be successfully remediated as in the case of an egregious digression, a determination will be made by Committee on continuation or dismissal from the College of Education.

**The College of Education (COEd) Conceptual Framework:**

The COEd Conceptual Framework serves as a guide for our professional education programs. It highlights our commitment to excellence across courses and clinical experiences and reflects current research and alignment to professional standards. This document describes how we are dedicated to the development of highly skilled and ethical education professionals who are also intellectual and educational leaders. The UTA College of Education Conceptual Framework may be found at this link: <http://www.uta.edu/coed/about/conceptual-framework.php>

**COEd Librarian to Contact:**

The College of Education Librarian is Michelle Reed, [michelle.reed@uta.edu](mailto:michelle.reed@uta.edu), 817-272-5127

**Academic Integrity:** Students enrolled all UTA courses are expected to adhere to the UTA Honor Code:

*I pledge, on my honor, to uphold UTA’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UTA faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

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| **Course Schedule** | | | | |
| **Module/**  **Week** | **Topic** | **Module Learning Outcomes** | **Assignments** | **Due** |
| Module 1/  Week 1 | What is the Nature of Science and Mathematics? | * Describe the nature of science and mathematics. * Explain and understand the types of things scientists and mathematicians do. * Understand and apply how the disciplines of science and mathematics relate to how we teach these subjects in schools. | * Module 1 ENGAGE Discussion 1 | Initial Post due Wednesday of Week 1, 11:59 pm CT  Response Posts Sunday of Week 1, 11:59 pm CT |
| * Module 1 ENGAGE Reading & Journal 1 | Sunday of Week 1, 11:59 pm CT |
| * Module 1 EXPLORE Discussion 1 | Initial Post due Wednesday of Week 1, 11:59 pm CT  Response Posts due Sunday of Week 1, 11:59 pm CT |
| * Module 1 EXPLAIN Reflection Test 1 | Sunday of Week 1, 11:59 pm CT |
| * Module 1 EVALUATE Assignment 1 | Sunday of Week 1, 11:59 pm CT |
| Module 2/ Week 2 | What is the Purpose of Schools? | * Analyze the purpose of schools and education. * Understand our primary goal as educators to achieve the purpose of schools/education, particularly in science and mathematics. | * Module 2 ENGAGE * Discussion 1 | Initial Posts due Wednesday of Week 2, 11:59 pm CT  Response Posts due Sunday of Week 2, 11:59 pm CT |
| * Module 2 EXPLORE Discussion 1 | Initial Post due Wednesday of Week 2, 11:59 pm CT  Response Post due Sunday of Week 2, 11:59 pm CT |
| * Module 2 * ELABORATE Discussion 1 | Initial Post due Friday of Week 2, 11:59 pm CT  Response Posts due Sunday of Week 2, 11:59 pm CT |
| * Module 2 EVALUATE Reflection Test 1 | Sunday of Week 2, 11:59 pm CT |
| Module 3/ Week 3 | How do Children Learn? | * Describe the nature of learning and understand how children (and all people) learn. * Learn the underlying psychological aspects of learning and the importance to teaching and learning. * Construct understanding of a teaching model that matches how children learn. | * Module 3 ENGAGE Discussion 1 | Initial Post due Wednesday of Week 3, 11:59 pm CT  Response Post due Sunday of Week 3, 11:59 pm CT |
| * Module 3 ELABORATE Reflection Journal 1 | Sunday of Week 3, 11:59 pm CT |
| * Module 3 EVALUATE Assignment 1 | Sunday of Week 3, 11:59 pm CT |
| Module 4/ Week 4 | How Children Learn (HCL) continued, and the Learning Cycle/5E Model | * Describe characteristics of each stage of intellectual development and other aspects of Piaget's constructivist psychology of learning * Analyze evidence of intellectual development among students * Examine additional psychologies of learning and how they inform our teaching/learning * Connect the psychologies of learning to classroom teaching, particularly the model known as the learning cycle/5E | * Module 4 ENGAGE Discussion 1 | Initial Post due Wednesday of Week 1, 11:59 pm CT  Response Post due Sunday of Week 1, 11:59 pm CT |
| * Module 4 ENGAGE Reflection Test 1 | Sunday of Week 4, 11:59 pm CT |
| * Module 4 EXPLAIN Discussion 1 | Initial Post due Friday of Week 4, 11:59 pm CT  Response Post due Sunday of Week 4, 11:59 pm CT |
| * Module 4 EXPLAIN Reflection Journal 1 | Sunday of Week 4, 11:59 pm CT |
| * Module 4 ELABORATE Reflection Journal 1 | Sunday of Week 4, 11:59 pm CT |
| * Module 4 EVALUATE Assignment 1 | Sunday of Week 4, 11:59 pm CT |
| Module 5/ Week 5 | The NOS/M, POS, HCL and Learning Cycle/5E in Teaching | * Extend and expand understanding and implementation of the Learning Cycle/5E model in science and mathematics teaching and learning. * Critically analyze science content, lessons and curricula, and science education literature for the selection and/or modification of appropriate and meaningful learning experiences. | * Module 5 EXPLORE Discussion and Activity 1 Ramps & Cars | Initial Post due Friday of Week 5, 11:59 pm Central Time  Response Posts due Sunday of Week 5, 11:59 pm Central Time |
| * Module 5 EVALUATE Assignment 1 | Sunday of Week 5, 11:59 pm CT |
| Module 6/ Week 6 | Extending the Learning Cycle/5E Model | * Construct, present, and share original standards-based, inquiry-based curricula * Review existing commercially available Learning Cycle/5E Curricula. * Finalize understandings of the theoretical and practical implementation of the Learning Cycle/5E Model. | * Module 6 EXPLAIN Assignment 1 | Draft Posted to Discussion Board for Peer Feedback: Wednesday of Week 6, 11:59 pm CT  Final Assignment: Sunday of Week 6, 11:59 pm CT |
| * Module 6 EXPLAIN Discussion 1 | Initial Post due Wednesday of Week 6, 11:59 pm CT  Response Post due Friday of Week 6, 11:59 pm CT |
| * Module 6 ELABORATE Discussion 1 | Initial Post due Friday of Week 6, 11:59 CT  Response Post due Sunday of Week 6, 11:59 CT |
| * Module 6 EVALUATE Test 1 ULC | Sunday of Week 6, 11:59 pm CT |
| Module 7/ Week 7 | Science and Mathematics Teaching, Learning, and Research | * Explore and examine research in science and mathematics education. * Begin planning the Capstone Classroom Research project. * Substantiate the significant need for a STEM literate society and workforce * Focus on leadership in improving science and mathematics education for the future. | * Module 7 EXPLORE Reflection Test 1 | Saturday of Week 7, 11:59 pm CT |
| * Module 7 ELABORATE Discussion 1 | Initial Post due Friday of Week 7, 11:59 pm CT  Response Post due Saturday of Week 7, 11:59 pm CT |
| * Module 7 EVALUATE Reflection Journal 1 | Saturday of Week 7, 11:59 pm CT |

*\*The instructor for the course reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.*

**Attendance:**

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, [insert your attendance policy and/or expectations, e.g. “I will take attendance sporadically” or “I have established the following attendance policy: …”] However, while UTA does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UTA instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

**Other Requirements/Information:**

This course is organized into weekly Modules with readings, videos, presentations, and all course content organized with each Module over a 7-week period of time. Each individual Module (Modules 1-7) is to be completed over the course of one week. That is, Module 1 is to be completed week 1 of the course, Module 2 is to be completed week 2 of the course, and so on through the end of the course in week 7. The items within each weekly Module are organized to be completed in order of appearance. Your UTA Course Instructor may offer additional webinars or live video opportunities for you to ask questions or discuss content; this will be determined by the individual Course Instructor each semester and according to student need.

**Grade Grievances**: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. For undergraduate courses, see <http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>; for graduate courses, see <http://catalog.uta.edu/academicregulations/grades/#graduatetext>. For student complaints, see <http://www.uta.edu/deanofstudents/student-complaints/index.php>.

**Drop Policy:**

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/)>.

**Disability Accommodations:**

UTA is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UTA are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD).Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability).

Counseling and Psychological Services (CAPS) [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Non-Discrimination Policy:**

*The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*.*

**Title IX Policy:**

The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated.*For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](file:///C:\Users\hannabas\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\697W32M3\jmhood@uta.edu).

**Lab Safety Training:**

Certain laboratory courses in the Colleges of Engineering and Science where students may be working with chemicals, biological material, radiological material or lasers require safety training. Students registered for such courses must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned. *This course does not require laboratory safety training.*

**Electronic Communication:**

UTA has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Campus Carry:**

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:**

At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UTA’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:**

For semester-long courses**,** a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Student Support Services**:

UTA provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php), [major-based learning centers](http://www.uta.edu/universitycollege/resources/college-based-clinics-labs.php), developmental education, [advising and mentoring](http://www.uta.edu/universitycollege/resources/advising.php), personal counseling, and [federally funded programs](http://www.uta.edu/universitycollege/current/academic-support/mcnair/index.php). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

**The IDEAS Center (**2nd Floor of Central Library) offers **FREE** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UTA. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

**The English Writing Center (411LIBR)**: The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at <https://uta.mywconline.com>. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see [www.uta.edu/owl](http://www.uta.edu/owl) for detailed information on all our programs and services.

The Library’s 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation. <http://library.uta.edu/academic-plaza>

**Emergency Phone Numbers**: In case of an on-campus emergency, call the UTA Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

**UTA LIBRARY:** [**library.uta.edu**](http://library.uta.edu/)

**RESOURCES FOR STUDENTS**

**Research or General Library Help**

Academic Plaza Consultation Services [library.uta.edu/academic-plaza](http://library.uta.edu/academic-plaza)

Ask Us [ask.uta.edu/](http://ask.uta.edu/)

Library Tutorials [library.uta.edu/how-to](http://library.uta.edu/how-to)

Subject and Course Research Guides [libguides.uta.edu](http://libguides.uta.edu/)

Librarians by Subject [library.uta.edu/subject-librarians](http://library.uta.edu/subject-librarians)

Research Coaches <http://libguides.uta.edu/researchcoach>

**Resources**

A to Z List of Library Databases [libguides.uta.edu/az.php](http://libguides.uta.edu/az.php)

Course Reserves [pulse.uta.edu/vwebv/enterCourseReserve.do](http://pulse.uta.edu/vwebv/enterCourseReserve.do)

FabLab [fablab.uta.edu/](http://fablab.uta.edu/)

Scholarly Communications (info about digital humanities, data management, data visualization, copyright, open educational resources, open access publishing, and more) <http://library.uta.edu/scholcomm>

Special Collections [library.uta.edu/special-collections](http://library.uta.edu/special-collections)

Study Room Reservations [openroom.uta.edu/](http://openroom.uta.edu/)

**Teaching & Learning Services for Faculty**

Copyright Consultation [library-sc@listserv.uta.edu](http://library-sc@listserv.uta.edu)

Course Research Guide Development, Andy Herzog [amherzog@uta.edu](http://amherzog@uta.edu) or your subject librarian

Data Visualization Instruction, Peace Ossom-Williamson [peace@uta.edu](http://peace@uta.edu)

Digital Humanities Instruction, Rafia Mirza [rafia@uta.edu](http://rafia@uta.edu)

Graduate Student Research Skills Instruction, Andy Herzog [amherzog@uta.edu](http://amherzog@uta.edu) or your subject librarian

Project or Problem-Based Instruction, Gretchen Trkay [gtrkay@uta.edu](http://gtrkay@uta.edu)

Undergraduate Research Skills Instruction, Gretchen Trkay [gtrkay@uta.edu](http://gtrkay@uta.edu) or your subject librarian.

**OTHER RESOURCES**

Environmental Health & Safety (<http://www.uta.edu/ehsafety>)