



Course title and number DDHS 4715: Research Methods
Term (e.g., Fall 200X) Fall 2023
Meeting times and location Tuesdays, 10am-12pm, Room 310

Course Description

This course is designed to introduce the dental hygiene student to the basic concepts of research design and knowledge discovery in the context of evidence-based health science practice. Emphasis is placed on developing the ability to critically evaluate the dental literature, apply it to dental practice, and especially to communicate knowledge to the dental community through verbal and written media.

Learning Outcomes or Course Objectives

Course Objectives:

Upon successful completion of the course, the student will be able to:

1. Explain how research informs knowledge development and daily practice.
2. Differentiate between sources of human knowledge relative to research approaches.
3. Incorporate critical thinking into an evidence-based treatment decision-making process.
4. Describe the scientific method and research process, and their relevance to healthcare.
5. Gain an appreciation for the role of research in evidence-based oral healthcare practice.
6. Evaluate the merits and limitations of oral healthcare research articles.

Related Competencies:

This course addresses the following specific competencies that will be needed to treat patients in a professional and competent manner. Refer to the [Competencies for the Dental Hygienist, Caruth School of Dental Hygiene](#) document available on the TAMU Dental School intranet.

Ethics

- 1.1. Apply ethical reasoning to dental hygiene and practice with professional integrity.

Information Management and Critical Thinking

- 2.1. Apply critical thinking skills and evidence-based decision making to the practice of dental hygiene.
- 2.2. Commit to self-assessment and lifelong learning in order to provide clinical care.
- 2.3. Effectively communicate with diverse populations without discrimination.
- 2.4. Employ the principles of scientific writing.

Professional Identity

- 3.1. Prepare for career opportunities within health care, industry, education, research, and other roles as they evolve for the dental hygienist.
- 3.2. Advance and promote the values of the profession through leadership, service activities, and affiliation with professional organization.
- 3.3. Contribute towards the knowledge base of the dental hygiene profession.

Community Involvement

- 5.3. Influence the public (consumer groups, businesses and government agencies) to support important health care issues.

Course Director Information

Name Mikhail Umorin, Ph.D.

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Office hours By appointment
Office location School of Dentistry, Administrative Bld, room 497

Participating Course Faculty:

- Leigh Ann Nurick, BSDH, MA, MS
- Chelsea Moorman, RDH, BSDH
- Emet Schneiderman, PhD
- Eric Fox, RDH, MS
- Jane Cotter, RDH, MS
- Kayla Reed, RDH, MS
- Lisa Mallonee, MPH, RDH, RD, LD
- Lisa Mayo, RDH, MHA
- Mary Vu, RDH, MS
- Maureen Brown, RDH, BSDH, MS-HIED

Textbook and/or Resource Material

Rerecommended (optional) Resources

Research Methods in the Health Sciences (1st Ed.)
Authors: Deborah Zelizer, Kathleen McGoldrick, and Deborah Firestone
Published: 2018
ISBN: 978-1-5165-1866-1

Evidence-Based Dentistry for the Dental Hygienist
Edited by Julie Frantsve-Hawley
Published: 2014
ISBN: 978-0-86715-646-1

AMA Manual of Style: A Guide for Authors and Editors (10th Ed.)
Edited by JAMA & Archives Journals
Published: 2007
ISBN: 978-0-19517-633-9

Lecture outlines, handouts, Powerpoint slides, and other course materials will be posted to the course Canvas Learning Management web site. There will be no printed course manuals.

Grading Policies

Evaluation Criteria/Methods: A base total of 250 points will be available throughout the semester, divided among the following assignments:

- Two examinations of 75 points each for a total of 150 points. These examinations may be given in true/false, multiple choice, short answer, essay format, or any combination thereof. These examinations will primarily assess the student's understanding of materials and concepts introduced in the lectures and associated materials.
- Development of an informative poster for presentation in collaboration with team members will constitute 35 available points. Although posters will be developed in collaboration, students will receive individual grades based on their demonstrated contributions to the overall project
- Each student will individually submit a narrative review of the subject matter chosen by the team for the poster project. This assignment will engage the student's ability to discuss and develop ideas in collaboration with others, and then communicate a personal understanding and perspective of that knowledge that illustrates critical thinking. This review will be worth a possible 50 points.

- Each student will individually write and submit an abstract of 250 words maximum for the team's poster project, worth a maximum of 15 points. This will develop each student's ability to synthesize knowledge and understanding into a clear and concise form for dissemination.

Every graded item must be passed with at least 70% of the possible maximum score to pass the course. There is NO extra credit.

Pre-lecture preparation assignments will be posted to Canvas the week before they are discussed in class.

Final point totals will be converted to percentages of a possible 250 points, and then translated into letter grades with the following scale:

A = 90-100
B = 80-89
C = 75-79
D = 70-74
F = <70

Course director may choose to round percentages up to the nearest whole number.

OPTIONAL LAUNCH URS Thesis program

The Undergraduate Research Scholars (URS) thesis program seeks to provide eligible undergraduates with a graduate student experience by allowing them to participate in research and communicate their findings as principal authors to the University's scholarly community.

You will be paired with 2-3 Dental Hygiene faculty mentors who will guide you through writing a thesis. You will be offered writing resources through the University Writing Center. You will have an opportunity to present your thesis at the URS Symposium. All faculty mentors are subject to Course Director approval.

Deadline for application this year is **September 11, 2023 at 11:59am CDT**. More info and registration at: <https://launch.tamu.edu/Undergraduate-Research/URS>

Other Pertinent Course Information

Professionalism, Late Submission, and Switching Exam Policy:

- Submitting your own work: Use of text-correcting or generating tools (like ChatGPT, Grammarly, other AI, another human) beyond simple spelling or grammar check is prohibited. If a tool suggests words, phrases, or sentences you should use – that's not ok!
- Late Assignments: Submission of assignments are due as stated by the Course Director. Assignments submitted after the due date will be considered late and students will be penalized five points per calendar day the assignment is submitted late (this includes weekends).
- Switching Exams: Due to the sensitive timing/scheduling of the course exam dates cannot be switched.

Attendance Policy:

Regular and punctual attendance is mandatory for scheduled or rescheduled classes. If a student must be absent from a class meeting for any reason, the student must notify the Dental Hygiene Department as soon as possible. If a student must miss an examination or other assignment deadline for a valid reason, that student must contact one of the course directors within 48 hours of the missed examination or deadline or risk forfeiting the points for that assignment, unless doing so is deemed impossible or unreasonable.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Associate Dean for Academic Affairs in charge of Disability Services, Room 514, or call 214-828-8208 for more information. For additional information, visit [TAMU Department of Disability Services](#).

Academic Integrity

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the honor Code, to accept responsibility, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information, visit [TAMU Aggie Honor System Office](#).

Diversity Statement

“Texas A&M University is committed to enriching the learning and working environment for all visitors, students, faculty, and staff by promoting a culture that embraces inclusion, diversity, equity, and accountability. Diverse perspectives, talents, and identities are vital to accomplishing our mission and living our core values.”

Course Topics and Calendar of Activities

Class meetings: Tuesdays from 10:00 am to 12:00pm in TAMU SOD Administrative Bldg. Rm. 310.

| Week | Learning Module | Instructor |
|----------------|--|---|
| Week 1 8/15 | <p>Course Overview:</p> <ul style="list-style-type: none"> • Syllabus, Rubrics, & Expectations • ADHA Research Agenda <p>Introduction to Research:</p> <ul style="list-style-type: none"> • Evidence-Based Decision Making • Scientific Method & Research Process • PICO and FINER Criteria | Dr. Umorin |
| Week 2 8/22 | <p>Research Design & Levels of Evidence:</p> <ul style="list-style-type: none"> • Primary vs. Secondary Research • Qualitative vs. Quantitative Approaches • DV, IV, and Extraneous Variables • Study design vs Analysis • | Dr. Umorin |
| Week 3 8/29 | <p>Data Collection:</p> <ul style="list-style-type: none"> • Sampling Techniques • External Validity & Reliability • Sensitivity & Specificity • | Dr. Umorin |
| Week 4 9/5 | <p>Legal & Ethical Concerns in Research:</p> <ul style="list-style-type: none"> • Informed Consent & Confidentiality • Human Experimentation Regulations • Institutional Review Board <p>Introduction to Biostatistics I</p> <p>Writing Workshop I:</p> <ul style="list-style-type: none"> • Scientific & Technical Writing | <p>Dr. Schneiderman <i>SOD IRB Chair</i></p> <p>Dr. Umorin TAMU UWC over Zoom</p> |
| Week 5 9/12 | <p>Introduction to Biostatistics I:</p> <ul style="list-style-type: none"> • Theories, Principles, & Fallacies • Descriptive & Inferential Statistics | Dr. Umorin |

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| Week 6 9/19 | Exam 1 | |
| | <u>Modules Covered:</u> Introduction to Research, Research Designs & Levels of Evidence, Data Collection, Legal & Ethical Concerns in Research, and Introduction to Biostatistics I | |
| Week 7 9/26 | Introduction to Biostatistics II: <ul style="list-style-type: none"> • Selection & Use of Statistical Tests • Sensitivity & Specificity, Internal validity • Statistical & Clinical Significance Writing Workshop I: Scientific & Technical Writing | Dr. Umorin TAMU UWC Staff over Zoom |
| Week 8 10/3 | Dissemination & Implementation: <ul style="list-style-type: none"> • Presenting and Publishing Research • Scientific and Technical Writing | Dr. Umorin |
| Week 9 10/10 | Evaluating Published Literature: <ul style="list-style-type: none"> • The Art & Science of Criticism • Elements of Critiquing Literature | Dr. Umorin |
| Week 10 10/17 | Exam 2 | |
| | <u>Modules Covered:</u> Introduction to Biostatistics (I and II), Dissemination & Implementation, Evaluating Published Literature, Writing Workshop I | |
| Week 11 10/24 | Writing Workshop II: <ul style="list-style-type: none"> • Developing Research Posters Scientific Abstracts: <ul style="list-style-type: none"> • Composing Informative Abstracts | (TAMU UWC over Zoom) Dr. Umorin |
| Weeks 12-18 | Class meetings as needed and independent study | TBD |

Writing assignment and other deadlines will be discussed in class. The course is being optimized, thus, the course director may alter the class schedule and/or deadlines. Students should expect to attend class meetings at the normal scheduled time for the entire semester until and unless a class meeting is specifically canceled.

