Advanced Appraisal Techniques and Psychometrics

Course Description

This course is designed to provide an in-depth knowledge base of psychometric principles and measurement theory as applied to the design, evaluation, planning, and implementation of assessment processes at the individual, group, and program level. Advanced principles of instrument design (e.g., factor analytic techniques and item analysis procedures) will be utilized to explore critical issues related to the validity and reliability of assessment instruments. Student will learn to apply these core principles of measurement in evaluation contexts relevant to contemporary counseling practices.

Learning Objectives

Upon completion of the course, students will be able to:

- Demonstrate an in-depth knowledge and understanding of the historical, philosophical, and social backgrounds of assessment and psychometric principles as evidenced by achieving a score of 80% or higher on each of the knowledge-based quizzes.

- Demonstrate an in-depth knowledge and understanding of the skills and competencies that test examiners must master including critical evaluation of tests/assessments as evidenced by achieving a score of 80% or higher on each of the knowledge-based quizzes.

- Demonstrate an in-depth knowledge and understanding of measurement, statistical, and research skills needed to select, administer, and interpret tests and assessment information as evidenced by achieving a score of 80% or higher on each of the knowledge-based quizzes.

- Critique tests and assessment techniques, including behavioral observations and computer-assisted programs as evidence by a score of 80% or higher on the test review assignment.

- Demonstrate knowledge and understanding of the legal aspects and requirements as well as ethical standards of assessment as demonstrated by a score of 80% or higher on the teaching presentation assignment.

- Demonstrate knowledge and understanding of instrument design by utilizing specific analytical techniques to validate the psychometric properties of tests as demonstrated by a score of 80% or higher on the instrument development and validation assignment.

- Demonstrate advanced proficiency in the models and methods of assessment and use of data as demonstrated by a score of 80% or higher on the teaching presentation assignment.
• Demonstrate knowledge and understanding of models and methods of program evaluation as evidenced by achieving a score of 80% on the program evaluation assessment paper.

**Major Course Requirements**

1) **Knowledge-Based Quizzes (100 points)**

Students will complete four knowledge-based quizzes throughout the semester. Quizzes will include multiple choice items based on the material presented in class as well as in all assigned course readings (textbook and other). Each knowledge-based quiz will assess students’ knowledge of prescribed content and is worth 25 points. Knowledge-based quizzes will be administered online through the Blackboard course shell. Deadlines for completing knowledge-based quizzes are included in the course schedule.

2) **Test Review (50 points)**

Students will prepare a written review (5-page maximum) of a published assessment instrument of their choosing and upload it to the Blackboard page. To complete this assignment, students will need to access information regarding assessments in either the *Mental Measurement Yearbook* or *Tests in Print*. Both sources are available in the library and online through the library’s MMY and Tests in Print database.

Examples of test reviews can be found on the Association for Assessment and Research in Counseling (AARC) website ([http://aarc-counseling.org/test-reviews](http://aarc-counseling.org/test-reviews)). These examples should help you write your own review (DO NOT copy those reviews found here).

It is important that students discuss their professional opinion of the value of their chosen assessment based on their review of the instrument. Submissions will be evaluated based on the completeness in which the instrument is reviewed. Students should submit a professional test review (prepared in APA format) addressing the four aspects of an instrument delineated below.

**General information (10 points)**

- Title of instrument
- Author(s) of instrument
- History of instrument
- Population for whom test was designed (client type, setting, etc.)
- Time required for administration
- Cost
- Publisher or contact information

**B) Practical evaluation (10 points)**

- Features of assessment materials (e.g., booklets, administration format)
- Ease of administration
- Scoring procedures
- Qualifications for users/administrators
- Use in counseling
3) Applied Instrument/Scale Development and Validation (150 points)

Using principles discussed in class, students will work collaboratively in small groups to develop a self-report instrument designed to measure an identified construct selected for the class. Students will be expected to pilot test their instrument and report both the results and psychometric properties (e.g., internal consistency, validity, and reliability) of their instrument based on the preliminary data collected. Students will need to personally recruit participants to complete their questionnaire and then conduct an analysis, using appropriate statistical techniques, of the key psychometric properties of their instrument.

To begin, students will create an initial item pool based on their identified construct. After collecting pilot data and analyzing the psychometric properties of their new instrument, students will refine the instrument by trimming items and identifying underlying factor structures based on the standard conventions discussed in class. After developing their instrument, each group will be expected to produce an APA-formatted document and present their newly created instrument to the rest of the class. Group members should coordinate among themselves who will be responsible for completing which sections of the manuscript. Only one manuscript will be submitted per group. To facilitate learning, student groups and professor will work collaboratively during scheduled class meeting times to replicate the practice of designing a new assessment instrument. The manuscript will be evaluated on the following elements:

A. Introduction and Review of the Literature (20 points)
   - Brief review of the relevant professional literature (minimum of five contemporary references) supporting the rationale and need for the instrument
   - Establish uniqueness of the proposed instrument (how does it differ from existing tests?)

B. Item development process (40 points)
   - Operationalizing your construct
   - Creating an initial item pool
   - Determining an appropriate response format
   - External review of item pool and revisions
   - Establishing a scoring protocol for the instrument

C) Technical evaluation (15 points)
   - Normative sampling information
   - Types of norms (percentiles, standard scores)
   - Estimates of Reliability
   - Estimates of Validity
   - Generalizability

D) Application of instrument (15 points)
   - Major strengths and limitations of the instrument
   - Recommendations for use
   - Multicultural considerations of the instrument
   - References
C. Results of a factor analytic application (40 points)
   - Evaluating the factorability of the intercorrelation matrix
   - Determining how many factors to extract
   - Determining how many factors to retain
   - Determining the appropriate factor rotation method
   - Interpreting factor structure and naming factors

D. Utility of the instrument (40 points)
   - A detailed interpretation of the final factor solution (what does this mean)
   - Recommendations for how this instrument can be used to inform the practice of counseling or counselor education
   - Identification of populations for whom this instrument would best be suited and those for whom the instrument might not be appropriate to use

E. Professional writing conventions (10 points)
   - Grammatically correct and free from error
   - Adherence to APA style guidelines

4) Program Evaluation Paper (100 points)

Students will be required to complete a program evaluation plan for a counseling program (school-based or community-based) of their choosing using the knowledge and skills gained throughout this course. An outline for the program evaluation plan and the rubric used to score your performance will be distributed in class and included on the course Blackboard page.

Point Allocation

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<tbody>
<tr>
<td>Knowledge-Based Quizzes</td>
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<td>Test Review</td>
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<td>Scale Development Project</td>
<td>150 points</td>
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<td>Program Evaluation Paper</td>
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Grade Distribution

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<td>360-400</td>
<td>320-359</td>
<td>280-319</td>
<td>210-279</td>
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Required or Recommended Readings

*Textbook:*

Recommended or supplemental readings:


**State Adopted Proficiencies for School Counselors**

**School Counselor Standard I: Learner-Centered Knowledge**
The professional school counselor must have a broad knowledge base.

**School Counselor Standard II: Learner-Centered Skills**
The professional school counselor applies the knowledge base to promote the educational, personal, social, and career development of the learner.

**School Counselor Standard III: Learner-Centered Process**
The professional school counselor participates in the development, monitoring, and evaluation of a developmental school guidance and counseling program that promotes learners’ knowledge, skills, motivation, and personal growth.

**School Counselor Standard IV: Learner-Centered Equity and Excellence for All Learners**
The professional school counselor promotes academic success for all learners by acknowledging, respecting, and responding to diversity while building on similarities that bond all people.
School Counselor Standard V: Learner-Centered Communications
The professional school counselor, an advocate for all students and the school, demonstrates effective professional and interpersonal communication skills.

School Counselor Standard VI: Learner-Centered Professional Development
The professional school counselor pursues continuous professional development, demonstrating a commitment to learn, to improve the profession, and to model professional ethics and personal integrity.

TExES Competencies (COE)

Competency 004 (Program Management): The school counselor understands how to plan, implement, and evaluate a developmental guidance program, including counseling services, which promotes all students’ success.

Competency 007 (Assessment): The school counselor understands principles of assessment and is able to use assessment results to identify students’ strengths and needs, monitor progress, and engage in planning to promote school success.

Competency 010 (Professionalism): The school counselor understands and complies with ethical, legal, and professional standards relevant to the profession.

CACREP Standards

This course is designed to meet 2016 CACREP standards included in Section 2 (Professional Counseling Identity) and Section 6 (Doctoral Training Standards). The following standards are covered in this course, with standards shown in bold type representing the targeted course objectives that will be assessed throughout the semester.

Core Curriculum Standards

- CACREP Standard 2-F-7-g: Statistical concepts, including scales of measurement, measures of central tendency, indices of variability, shapes and types of distributions, and correlations.

- CACREP Standard 2-F-7-h: Reliability and validity in the use of measurements.

- CACREP Standard 2-F-7-m: Ethical and culturally relevant strategies for selecting, administering, and interpreting assessment and test results.

- CACREP Standard 2-F-8-e: Evaluation of counseling interventions and programs.

- CACREP Standard 2-F-8-h: Statistical methods used in conducting research and program evaluation.
Doctoral Standards

- CACREP Standard 6-B-4-e: Models and methods of instrument design.
- CACREP Standard 6-B-4-f: Models and methods of program evaluation.
- CACREP Standard 6-B-4-h: Professional writing for journal and newspaper publication.

Course Policies

Attendance

Students are expected to attend each scheduled class session. While I believe class attendance to be important, I also realize that as adult learners, students have lives and responsibilities outside the classroom. When unexpected events or emergencies such as personal illnesses, family crises, or a death in the family arise, I ask that you communicate with me as soon as possible so that I am aware of the situation and we can work together to devise a mutually agreeable course of action. Under these circumstances, absences will be considered “excused” upon receipt of appropriate documentation (doctor’s note, court paperwork, obituary, etc.) and written approval from your instructor. Additional excused absences will be granted for participation in a religious holy day as outlined in the University catalog.

For absences that are not excused, the follow attendance policies are in place:

- Students are permitted only one unexcused absence without penalty during the semester. Upon a second unexcused absence, students will incur a 10% reduction in their final grade.
- Following a third unexcused absence, students will either receive a failing grade for the course or be administratively dropped from the course.
- Arriving late or leaving early to class is discouraged. Two such instances will count as an unexcused absence.
- Students acting unprofessionally in class will be asked to leave. Should a dismissal result in the student missing more than 50% of the class period, an unexcused absence will be issued.

Communication

Each TAMUCC student has access to an individual e-mail account assigned to them by the university. This is the primary method through which I will communicate with you throughout the semester. At the beginning of the course, students should make sure they have activated their account and make plans to check the account regularly. Students can expect a response to their questions from me within 48 hours (excluding weekends & university-recognized holidays).

Late Submissions of Student Work

All assignments are to be submitted online to the course Blackboard page prior to the beginning of class on the due date specified in the course calendar (see end of syllabus). Assignments not
received prior to the beginning of class will be considered late. A letter grade deduction will be applied to all late submissions that were not discussed with your instructor in advance. After five days, late assignments will no longer be accepted and a grade of zero will be issued.

Extra Credit

As a rule, extra credit opportunities will not be extended in this course. Course grades should be reflective of the proficiency level students are able to demonstrate through all course assignments and assessments. Requests to award additional points without just cause or to assign alternative/additional work for credit will be denied.

Academic Integrity and Plagiarism


University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery, or plagiarism (plagiarism is the presentation of the work of another as one's own work).

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanction to any student involved. Penalties that the instructor might possibly apply to individual cases of academic dishonesty include:

- Written reprimand
- Requirement to re-do work in question
- Requirement to submit additional work
- Lowering of grade on work in question
- Assigning grade of "F" to work in question
- Assigning grade of "F" for course
- Recommendation for more severe punishment, such as dismissal from program or University

If the faculty member determines that assigning a grade of "F" to the course is the appropriate penalty and this disciplinary action occurs prior to the deadline for dropping courses, the student forfeits his/her right to drop the course in question.

If the faculty member recommends more severe punishment, such as dismissal from the program or from the University, the faculty member will notify the appropriate chair/college dean, who in turn will notify the Office of Student Affairs. If dismissal from the University is recommended, the Office of Student Affairs will follow its procedure for such cases.

The faculty member must file a record for each case of academic dishonesty, including a description of the disciplinary action taken, along with any materials involved, with his or her college dean, who will forward a copy to the Office of Student Affairs. The office of the academic dean of the college in which the offense took place will maintain records of all cases of
academic dishonesty reported for a period of five years. The Office of Student Affairs will also maintain records of such cases for a period of five years. The Office of Student Affairs will inform the Graduate Dean as appropriate.

Any student who has been penalized for academic dishonesty has the right to appeal the judgment or the penalty assessed. Students who wish to appeal an academic dishonesty decision should contact the Office of Student Affairs for guidance on the appropriate steps for initiating the process.

Dropping a Class

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, **YOU** must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation **WILL NOT** automatically result in you being dropped from the class. **July 23rd** is the last day to drop course with an automatic grade of “W” this term.

Classroom/Professional Behavior

Texas A&M University-Corpus Christi, as an academic community, requires everyone to respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

Statement of Civility

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. The University’s goal is to provide you with a high quality educational experience that is free from repression. To assist in meeting this goal, you are responsible for following the rules of the University, city, state, and federal government. You are expected to behave in a manner that is dignified, respectful, and courteous to all people; regardless of gender, ethnic/racial origin, religious background, age, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

Grade Appeals

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the
appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Dean’s office in the college in which the course is taught or the Office of the Provost.

Disabilities Accommodations

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 call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall 116.

- If you are a returning veteran and experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

Statement of Academic Continuity

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
## Tentative Course Schedule (Summer 2018)

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<tr>
<th>Date</th>
<th>Topic and Assigned Readings</th>
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<tbody>
<tr>
<td>July 3</td>
<td>Introduction to course&lt;br&gt;Psychological testing and assessment&lt;br&gt;Historical, cultural, legal/ethical considerations</td>
</tr>
<tr>
<td>July 5</td>
<td>Review of basic statistical and measurement concepts&lt;br&gt;Test theory and development&lt;br&gt;Item generation and validation&lt;br&gt;<strong>Knowledge-Based Quiz #1 Deadline: July 8 @ 11:59pm</strong></td>
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<td>July 10</td>
<td>Exploratory factor analysis</td>
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<tr>
<td>July 12</td>
<td>Instrument design and validation consultation session #1&lt;br&gt;<strong>Knowledge-Based Quiz #2 Deadline: July 15 @ 11:59pm</strong></td>
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<tr>
<td>July 17</td>
<td>Confirmatory factor analysis&lt;br&gt;<strong>Test Review Paper Due July 20 @ 11:59pm</strong></td>
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<tr>
<td>July 19</td>
<td>Instrument design and validation consultation session #2&lt;br&gt;<strong>Knowledge-Based Quiz #3 Deadline: July 22 @ 11:59pm</strong></td>
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<td>July 24</td>
<td>Program evaluation</td>
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<tr>
<td>July 26</td>
<td>Program evaluation consultation session #1&lt;br&gt;<strong>Instrument Development Paper Due July 26 @ 11:59pm</strong>&lt;br&gt;<strong>Knowledge-Based Quiz #4 Deadline: July 29 @ 11:59pm</strong></td>
</tr>
<tr>
<td>July 31</td>
<td>Program evaluation consultation session #2</td>
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<tr>
<td>August 2</td>
<td>Student presentations of instruments&lt;br&gt;<strong>Program Evaluation Paper Due August 2 @ 11:59pm</strong></td>
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