A. COURSE INFORMATION

Course number/section:  MATH 5328.001  
Class meeting time:  W 7:00 – 9:30 PM  
Class location:  IH-157  
Course Website:  https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor:  Dr. James Dogbey  
Office location:  CI 304  
Office hours:  MWF 12:30pm – 2:00pm & MW 6:00pm – 7:00pm or by appointment  
Telephone:  361-825-3159  
E-mail:  James.Dogbey@tamucc.edu  
Appointments:  Feel free to make an appointment with me via email if you are unable to attend my regularly scheduled office hours. I’m here to help.

C. COURSE DESCRIPTION

An investigation of the principles and applications of probability and descriptive and inferential statistics. This class is intended for mathematics teachers.

D. PREREQUISITES AND COREQUISITES

Graduate standing; teacher certification or experience teaching mathematics in grades 6-12; and/or permission of the program coordinator.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required


Optional Textbook(s) or Other References

Navigating through Data Analysis and Probability in Grades 6–8, NCTM, 2006  
Navigating through Data Analysis in Grades 9–12, NCTM, 2006  
Navigating through Probability in Grades 9–12, NCTM, 2006
F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

Upon successful completion of the course, students will:

1. Organize, calculate, and interpret descriptive statistics using numerical and graphical techniques.
2. Compute probabilities for simple events, using such methods as organized lists, tree diagrams, area models and probability distributions.
3. Analyze and interpret data using correlation, regression, confidence intervals and hypothesis tests.
4. Enhance their understanding of how students learn data analysis and probability, the developmental and psychological foundations of how one teaches data analysis and probability, and national and state standards relating to data analysis and probability.
5. Construct strategies that are supported by current research for teaching data analysis and probability to students of differing abilities.
6. Design research studies by formulating appropriate questions that can be answered through data collection, analysis and interpretation.

G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

The course will consist of lecture, collaborative group work, class discussions and class presentations. Students are expected to participate in collaborative groups and whole class discussions by contributing knowledge and thoughtful evaluation of the contribution of others.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

- Informal and formative assessment will be employed. The informal assessment includes observation of class activities, discussion and participation; questioning; and student
feedback. Formal and summative assessment will include individual and group papers and projects, and reflective writing.

Classwork 30%
Project 20%
Homework 40%
Final Presentation 10%

Classwork – participate in inquiry tasks, whole-class discussion, and group work activities during regularly scheduled class time.

Project – Research and write a report about the difficulties associated with teaching and learning of Probability and Statistics in K-12 Curriculum (Research-based report).

Homework – demonstrate your mastery of select student learning outcomes during individual assessments.

Final Presentation – Presentation of your research-based report.

Final grades will be assigned as follows:

90% - 100% = A
80% - 89.9% = B
70% - 79.9% = C
60% - 69.9% = D
Below 60% = F

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Lesson</th>
<th>Topic &amp; Chapter Activities</th>
<th>Readings &amp; Assignments Due</th>
</tr>
</thead>
</table>
| 01/18 | 1      | Course Introduction: Elements of Statistics | Syllabus  
Types of Data                                                                                       |
| 01/25 | 2      | Organizing and Displaying Data              | Categorical Data, Quantitative Data, Making Decisions with Categorical and Numerical Data  
Problem Set 1                                                                                           |
| 02/01 | 3      | Describing Data with Numbers               | Measures of Center, Measures of Spread, Box-and whisker Plots                              |
| 02/08 | 4      | Data with Two Variables                    | Scatter Plots and Correlation, Pearson’s Correlation Coefficient, Slopes and Equations of Fitted |
### J. COURSE POLICIES

#### Attendance/Tardiness
Learning is a social process, maximized by active engagement, participation, and discussion. Thus, students are expected to attend every class and be an active participant in the classroom practices. In the event of an absence, students are to contact the instructor, arrange for a classmate to pick up any handouts, and turn in any work that is due. Absent students are responsible for any work announced in class and for all announced changes, additions, and deletions to the syllabus. Absence from class is not a valid excuse for failing to meet deadlines or fulfill course requirements.

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<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture</th>
<th>Notes</th>
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<tbody>
<tr>
<td>02/15</td>
<td>5</td>
<td>The Concept of Probability</td>
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<tr>
<td>02/22</td>
<td>6</td>
<td>Conditional Probability and Independence</td>
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<tr>
<td>03/01</td>
<td>7</td>
<td>Methods for Counting Outcomes</td>
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<tr>
<td>03/08</td>
<td>8</td>
<td>Expected Value, Connecting Probability and Statistics</td>
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<tr>
<td>03/22</td>
<td>9</td>
<td>Distributions from Random Samples</td>
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<tr>
<td>03/29</td>
<td>10</td>
<td>Estimating with Confidence</td>
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<tr>
<td>04/05</td>
<td>11</td>
<td>Testing Hypotheses</td>
</tr>
<tr>
<td>04/12</td>
<td>12</td>
<td>Testing Hypotheses</td>
</tr>
<tr>
<td>04/19</td>
<td>13</td>
<td>Designing a Study</td>
</tr>
<tr>
<td>04/26</td>
<td>14</td>
<td>Putting It All Together</td>
</tr>
<tr>
<td>05/03</td>
<td>15</td>
<td>Presentation</td>
</tr>
<tr>
<td>05/10</td>
<td>16</td>
<td>Presentation</td>
</tr>
</tbody>
</table>

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
K. COLLEGE AND UNIVERSITY POLICIES

• **Academic Integrity (University)**
  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, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual 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. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**
  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 website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

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

If you are a returning veteran and are 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.

[http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

- **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.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the
department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.