Department of Computer Science

1803 Avenue I
Suite 214, Academic Building One

Huntsville, Texas
P.O. Box 2090 • 77341-2090

(936) 294-3846
Fax • (936) 294-4312

COURSE SYLLABUS
COSC 5335.01 DATABASE SECURITY
3 Credit Hours, Spring 2018

Class Meeting: Online (Duration: 01/17/2018 - 05/04/2018)
Via Blackboard Learning Management System – http://blackboard.shsu.edu

Instructor: Dr. Min Kyung An
Office: AB1, Room 212D, Sam Houston State University, Huntsville, TX 77341
Office Phone: 936-294-4333
Email: an@shsu.edu

Office Hours: Online via email and class forums on Blackboard.
Online office hours to be arranged and announced.
Other times (for online or face-to-face meeting) are available by appointment.

Teaching Assistant: TBA
Office: TBA
Email: TBA
Office Hours: TBA

Course Description: Database security has an immense impact on the design of today's electronic information systems. This course will provide an overview of database security concepts and techniques and discuss new directions of database security in the context of a connected commercial world. This course provides the information needed to develop, deploy and maintain a secure database solution. It exposes the pitfalls of database designs, their means of identification and the methods of exploiting vulnerabilities. Prerequisites: COSC 3318 and DFSC 5310, or departmental approval

Course IDEA Objectives: Based on the Individual Development & Educational Assessment (IDEA), at the end of this course the ideal student should be able to present the following essential and important objectives:

(1) Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories).

ABET Computing Educational Outcomes: Based on ABET computing program educational outcomes, at the end of this course the ideal student should be able to present the following abilities (ABET outcome (a), (d), and (i)):

(1) Apply knowledge of computing and mathematics appropriate to the discipline;
(2) Function effectively on teams to accomplish a common goal;
(3) Use current techniques, skills, and tools necessary for computing practice.

Course Objectives: At the end of this course the students should be able to:

(1) Understand how database management systems (DBMSs) are structured, designed, implemented, and used.
(2) Describe potential flaws in commonly used DBMSs and how those flaws might

be mitigated.
(3) Explain commonly used approaches to secure DBMSs and protecting data.
(4) Develop appropriate documentation to support database security.

Required Textbook: **Database Security (1st Ed.)** by Alfred Basta and Melissa Zgola
Cengage Learning, 2012 (ISBN10: 1-4354-5390-5, ISBN13: 978-1-4354-5390-6)

Optional Reference: **Database Security and Auditing: Protecting Data Integrity and Accessibility**
by Hassan A. Afyouni
Cengage Learning, 2006 (ISBN10: 0-619-21559-3, ISBN13: 978-0-619-21559-0)

The Database Hacker's Handbook
by Litchfield, D., Anley, C. Heasman, J. & Grindlay, B.
Wiley, 2005 (ISBN: 0-7645-7801-4)

Course Requirements:

Weekly Schedule:
Weekly schedule of the course will be posted on Blackboard. Students are required to check the weekly schedule every week, and finish the activities listed in the schedule table.

SHSU E-mails:
Students are required to check SHSU E-mails regularly as announcement and reminders will be sent to SHSU e-mails.

Reading:
Reading assignment of textbook chapter(s), textbook slide(s), and supplementary material(s) will be posted on Blackboard. Although reading assignments won't be explicitly graded, it is a critical to catch up with course contents; thus, please make sure you are not to be behind.

Quizzes:
From time to time, you are required to take quizzes, which cover topics/fundamentals of a previous or current chapters. The quiz format can be either an online or take-home quiz. Each quiz date will be informed in advance. All quizzes will be graded and counted to your total grade.

Assignments:
Homework assignments will be given periodically in various forms (solving problems, hand-on projects, short papers, etc). Unless otherwise mentioned, no email submissions will be accepted, and each homework should be turned in Blackboard before/on the due date (usually one week after each homework's announcement). Late submissions will NOT be accepted, and there will be no exceptions. Graded homework with the instructor's comments will be uploaded on Blackboard usually within a week from the due date, and students are required to request correction(s) on grading within a week after each grade's posting.

Peer Evaluation:
For some assignments, students will be asked to grade others' assignments (i.e., peer evaluation). Therefore, to protect your identity from others, let's separate the first page of your paper and the remaining contents as follows: first page contain only the assignment number (or title) and your name (or id number), followed by separate pages of your answers. Details will be announced with the assignments, and peer evaluation

rubrics and forms will be distributed later.

Attendance:
Regular online attendance is required, and your attendance will be seriously monitored. Each week, you can earn the maximum possible points **100% by checking your attendance at the first date of the week**, **80% by checking your attendance at the second date of the week**, **60% by checking your attendance at the third date of the week**, or **0% by checking your attendance at remaining dates of the week**. So, do not forget to check your attendance on Blackboard.

Discussion:
Discussions and question-and-answer with others via discussion forums are highly recommended, because students can clarify misunderstanding and also share their ideas with others. To promote the participation in discussion, your discussion activities (posting questions, answering questions, and so on) will be monitored and graded.

Grading Criteria:

Attendance (10%) + Discussion (10%) + Quizzes (40%) + Assignments (40%)
= TOTAL (100%)

Course letter grades will be assigned according to the following:
90% ≤ TOTAL ≤ 100% → "A"
80% ≤ TOTAL < 90% → "B"
70% ≤ TOTAL < 80% → "C"
60% ≤ TOTAL < 70% → "D"
0% ≤ TOTAL < 60% → "F"

E-mail:

E-mail communication is naturally the best way to communicate with the instructor. **Please understand that the instructor will NOT respond to any E-mails that do not follow appropriate etiquette**. At a minimum, your email must include your name, course information, and specifics of your question. It must not include common IRC chat lingo or shorthand. If your email does not conform to the above mentioned minimum requirements, then your email will not be answered.
(Note: Please add "COSC5335" in the subject of each e-mail so that the instructor can easily retrieve the emails from students in COSC5335.)

Blackboard:

It will be the only source of all course related materials including homework problem sets and additional notes. Please familiarize yourselves with the course environment. While the instructor will try to provide all the prerequisite foundations materials required for the course, students are expected to possess a certain level of computing maturity and the desire to learn new concepts and naturally willing to work hard in this process to succeed in the course.

Instructional Methods:

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course utilizes individual learning activities, topic-specific quizzes, performance-driven assignments, problem-based cases, and discussions. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts. Additional goals supported by this course include: (a) developing a strong technical foundation in the computational sciences, (b) an understanding and sensitivity for security and professional ethics, (c) appreciation for the need to pursue professional and related learning activities for life. Students are

expected to: (a) employ critical thinking in seeking optimal problem solutions, (b) maintain and increase their professional knowledge/skill sets, (c) develop their ability to express their skills using tools and related analysis techniques and (d) to extend the discipline through original cognitive processes.

Suggested Learning Approach:

In this course, you will be studying individually. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work individually on assignments, raise critical questions, and provide constructive feedback. You are encouraged to actively participate in the discussion forums on Blackboard in an effort to learn from your classmates. The instructor will periodically monitor these discussion forums and offer comments to facilitate discussions. This serves to enrich the "virtual" classroom and make the material more exciting, inviting and above all fun!

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	**DON'T**
▪ Do take a proactive learning approach ▪ Do share your thoughts on critical issues and potential problem solutions ▪ Do plan your course work in advance ▪ Do explore a variety of learning resources in addition to the textbook ▪ Do offer relevant examples from your experience ▪ Do make an effort to understand different points of view ▪ Do connect concepts explored in this course to real-life professional situations and your own experiences	▪ Don't assume there is only one correct answer to a question ▪ Don't be afraid to share your perspective on the issues analyzed in the course ▪ Don't be negative towards the points of view that are different from yours ▪ Don't underestimate the impact of collaboration on your learning ▪ Don't limit your course experience to merely reading the textbook ▪ Don't postpone your work on the course deliverables – work on small assignment components every day

Class Participation:

(Notice that this "Class Participation" is initially for the traditional face-to-face setting and revised for the online setting.)
In accordance with University Policy, regular attendance is required and your attendance will be seriously monitored. In particular, your activity in online forums will be seriously monitored and points will be awarded based upon your contribution (evaluated and voted by peers), not your total attendance. You are responsible for all material covered in every online classes and labs, regardless of whether you attended or not. It is your responsibility to obtain class materials (notes, assignments, etc.) from fellow classmates if you miss a class.

Rules of Conduct:

(Notice that this "Rules of Conduct" is initially for the traditional face-to-face setting and revised for the online setting.)
Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Please turn off or mute your cellular phone and/or pager before class begins. Students are

prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking among each other at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a, minimally, a directive to leave class or being reported to the Dean of Students for disciplinary action in accordance with university policy.

Academic Dishonesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The university and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.
No cheating on an examination or assignments is allowed. A score of zero will be given to the student if such a case occurred.

Other Administrative Matters:

Americans with Disabilities Act:
It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.
SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities.

Religious Holidays:
An institution of higher education shall excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.