CYS 721: Database Security
Online Syllabus
Fall 2014

IMPORTANT SEMESTER DATES
Semester Starting Date ---------------- [Date]
Semester Ending Date ---------------- [Date]
Last Date for Class Withdrawal ------ [Date]

INSTRUCTOR
Name: Instructor Name
Office: [office #]
Phone: number
Email address: somebody@nsu.edu
Class meets: Online
Meeting time: NA
Office Hours: [f2f office hours]
Cyber Office Hours: [online office hours]

TEXT

DESCRIPTION
This course focuses on the theory and practice of implementing secure database systems. Emphasis will be placed on database security principles, database application security models, database auditing models, security implementation and database reliability.

COURSE RATIONALE
This course is required for the M.S. Cybersecurity degree program

COURSE DELIVERY METHOD
This course is delivered entirely online with synchronous and asynchronous activities deployed as required. The primary method of access to this course is the University Blackboard Learning Management System (LMS) and may be supplemented by other online resources. This course may also employ conferencing tools such as video conferences or Web conferences to facilitate communication and interaction with distant and local students.

PREREQUISITE

COREQUISITE
None

GOALS and OBJECTIVES
The major goal of the course is to familiarize students with the issues related to securing databases. This includes security implementation and auditing with an emphasis on business environments.

By the end of the course, students will be able to:
Define database management system functionalities
- Describe the operating system security environment from a database perspective
- Describe the different types of users in a database environment and the distinct purpose of each
- Understand the use of data encryption within database applications
- Define the term "virtual private database" and explain its importance
- Understand the database auditing environment
- Design and implement security and auditing solutions for many common business situations

CREDIT
3 semester hours

OUTLINE
- Security Architecture
- Operating System Security Fundamentals
- Administration of Users
- Profiles, Password Policies, Privileges, and Roles
- Database Application Security Models
- Virtual Private Databases
- Database Auditing Models
- Application Data Auditing
- Auditing Database Activities
- Security and Auditing Project Cases

REFERENCES

KEY Information Assurance sites
- Internet storm center http://isc.sans.org
- United States Computer Emergency Readiness Team http://www.us-cert.gov/
- SANS Institute http://www.sans.org
- NSU OIT Security web site http://security.nsu.edu
- National Information Assurance Training and Education Center http://niatec.info
- ACM Special Interest Group on Security, Audit and Control (SIGSAC) www.sigsac.org

ATTENDANCE POLICY
The Computer Science Department adheres to the University Policy on class attendance. For you to receive a passing grade, you must attend at least 80% of the class sessions. This means you must participate in 80% of the class activities.

EVALUATION
Assignments & Discussion Boards 50%
Quizzes 30%
Project 20%

The instructor reserves the right to revise the grading criteria as appropriate and will make reasonable attempts to notify students.
For graduate courses, the scale is:
A  90 – 100
B+ 87 – 89.9
B   80 – 86.9
C+  77 – 79.9
C   70 – 76.9
F   0 – 69.9

WRITTEN WORK CRITERIA
All written work is expected to reflect correct use of grammar, spelling, and organization of material. Work with errors of this nature will be penalized.

PROCTORING POLICY
Students who choose not to come on campus to take their exams, must have exams in online courses proctored. A proctored exam is one that is administered by an impartial individual (called a proctor) who monitors and supervises a student while that student is taking an exam. The proctor ensures the security and integrity of the exam process. Students will be required to submit an Online Course Proctor Identification Approval Form to each instructor. The form must be submitted and approved by the instructor within 30 days from the starting date of the semester. The instructor will not accept late forms (beyond the 30 day limit). Once the proctor has been approved by the instructor, the students will be required to present their Spartan Identification Card and photo identification to the proctor prior to students receiving the exam. Students are responsible for arranging a proctor for their exam(s) and all costs incurred for this service.

On-Campus Proctor Schedule for Midterm and Exams

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<tr>
<th>Time</th>
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<tr>
<td></td>
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<td>Midterm</td>
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<td>Final Examination</td>
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METHOD OF INSTRUCTION
The primary method of instruction will be online. The instructional method of use will be inductive, going from specific to general. Online learners will acquire new knowledge through exposure to new material and ideas and will discuss these ideas and concepts on the discussion board.

The following instructional strategies and methods will be among those used to achieve the learning objectives:
1. Class discussions
2. Collaborative learning
3. Case study
4. Assigned readings
5. Blackboard (on-line delivery)

COMPUTER LITERACY REQUIREMENTS
To successfully complete this course you must possess:
- A basic knowledge of computers. For example, understanding files and folders to upload or download course content is absolutely essential. Basic computer literacy classes (CSC-150) are available on campus as elective courses. Students deficient in the necessary computer skills should consider taking such classes.
- An understanding of the Web and its resources, such as the library and online research tools accessed through a Web browser.
- Familiarity with Microsoft Office applications, such as Word and PowerPoint; this is absolutely essential for your academic success.
- Familiarity with NSU’s e-mail system to guarantee effective communications with both the instructor and classmates. All NSU students have been assigned an e-mail account and are expected to access it regularly via the Web.
- Knowledge of Blackboard Learning Management System (LMS), which is mandatory for this course.

For those of you not familiar with the Blackboard LMS, an online orientation can be accessed by self-registering in Blackboard. The course name is "Blackboard Student Training." Additional assistance with Blackboard can be
obtained through the Blackboard Central Help Desk at bbtechsupport@nsu.edu or by phone at 757-823-2328 M - F 8AM - 6PM at the Lyman Beecher Brooks Library (LBBL), suite 3007.

Addressing your computer skills will greatly enhance your learning experience, reducing wasted time and frustration for yourself and your instructor. Please feel free to contact the Office of Information Technology (OIT) Client Services or the Office of Distance Education for advisement on how to receive assistance with your computer literacy instructional needs.

RELATED UNIVERSITY-WIDE AND COURSE-SPECIFIC REQUIREMENTS
Students apply written and oral communication skills through assignments given during the course. This course emphasizes critical thinking.

OFFICE LOCATION
The Department of Computer Science is located in suite 320 Robinson Technology Center. The individual faculty offices are located within the suite.

COMMUNICATION
BlackBoard Announcements Area
The Blackboard announcements area is specifically designed for communicating with students in this course. Whenever there are special instructions to all students in this class, such as a chat-session cancellation, a change in schedule or assignments, etc. a message will be sent via the announcement page. Please note that the announcements area is a messaging system that relates only to the members of this class. Announcements for other courses will be contained in the respective courses announcements area.

You can access your announcements by selecting the “announcements” button, located on the main page menu. You are required to check the announcements page daily for any new information. Any message that you need to send to your instructor in this class is best sent via Blackboard email.

For Blackboard log-on information go to www.nsu.edu/elearning/firstimeuser.html

E-mail Policy
NSU email is the only email system to be used for this course; private email addresses cannot be used. Always title your messages; be sure the subject line reflects the topic of discussion. Email messages should always be courteous and follow etiquette protocols. You should be respectful to those who are receiving your email; never send SPAM to other classmates. Remember that these documents are never deleted from the system and nothing is ever private. Also, always check your spelling before sending a message.

Discussion Boards
As part of your NSU online experience you will be using the Blackboard Discussion Forum. A good way of entering a discussion board or chat is to briefly introduce yourself. It is important to keep your questions and comments relevant to the topic of the discussion; when posting to a discussion board, you should read prior messages to get a sense of the flow and language of the discussion before posting your own message. If another person posts a comment or question that is off the subject, do not reply to the discussion board; if you want to reply, do so via a private e-mail directly to that person.
When working in groups do not hijack the discussion. Keep paragraphs and messages short and to the point.

AMERICANS WITH DISABILITIES ACT (ADA) STATEMENT
In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, we ask if you have a disability or think you have a disability please make contact with the Disability Services Department.
Location: Student Service Center, Suite 110
Contact Person: Ms. Janet L. Timberlake
Phone: (757)823-8325

ACADEMIC HONESTY
All class assignments are to be done independently, unless specified. If in my judgment a student is found cheating on an examination, assignment, or quiz, the student will be penalized. I consider the person who did the work
(examination, assignment, or quiz) and the person copying the work as both cheating. Students should save all
developmental copies of their assignments so that individual assignment development can be verified to me if I
think it is necessary.

The Department of Computer Science employs a no tolerance policy on cheating. Cheating includes, but is not
limited to, copying others work, misrepresenting the work of others as your own (including online sites),
plagiarism, sharing when unauthorized, and the use of cellular phones and/or electronic media when
unauthorized. The following outlines the departmental procedure if a student is suspected of cheating during his
or her academic tenure with the Computer Science Department at Norfolk State University.

- Offense 1 – The student will receive a grade of zero on the assignment and a note will be placed in the student's
  permanent departmental file.
- Offense 2 – The student will receive a letter grade of “F” for the course and the student will be reported to the
  Office of Student Rights and Responsibilities for adjudication.

UNIVERSITY ASSESSMENT
As part of NSU’s commitment to provide the environment and resources needed for success, students may be
required to participate in a number of university-wide assessment activities. The activities may include tests,
surveys, focus groups, interviews, and portfolio reviews. The primary purpose of the assessment activities is to
determine the extent to which the university's programs and services maintain a high level of quality and meet the
needs of students. Students will not be identified in the analysis of results. Unless indicated otherwise by the
instructor, results from University assessment activities will not be computed in student grades.

LIBRARY SUPPORT
Extensive library resources are available online, 24 hours a day, seven days a week at http://library.nsu.edu/. The
Lyman Beecher Brooks Library (LBBL) at NSU provides research assistance in creating search strategies, selecting
relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service at
http://library.nsu.edu/screens/askalibrarian.html. The Subject Guides area of the library's Web site at
http://library.nsu.edu/screens/databases_subject.html provides a listing of resource guides for each subject area,
with each guide containing relevant databases, Web sites, books, and other resources along with technical and
citation assistance. A guide to locating scholarly articles and using the LBBL's databases is available at
http://library.nsu.edu/screens/search_articles.html. LBBL allows users to simultaneously search for scholarly
articles, books, and/or other research resources via a single search engine in most of the databases to which LBBL
subscribes, either directly or as additional resources (http://library.nsu.edu/).
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<th>Week</th>
<th>Readings</th>
<th>Assignments/Due Dates</th>
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<td>1. Overview of Databases</td>
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<td>Discussion Quiz Written Assignment</td>
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<td>2. Security Issues faced by databases</td>
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<td>Discussion Quiz Written Assignment</td>
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<tr>
<td>3. Security Architectures</td>
<td>Chapter 1</td>
<td>Discussion Quiz Written Assignment</td>
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<td>4. Operating System Security</td>
<td>Chapter 2</td>
<td>Discussion Quiz Written Assignment</td>
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<tr>
<td>5. User Administration</td>
<td>Chapter 3</td>
<td>Discussion Quiz Written Assignment</td>
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<td>6. Profiles passwords policies, privileges and roles</td>
<td>Chapter 4</td>
<td>Discussion Quiz Written Assignment</td>
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<td>7. Database Security models</td>
<td>Chapter 5</td>
<td>Discussion Quiz Written Assignment</td>
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<td>8. Virtual Private Databases</td>
<td>Chapter 6</td>
<td>Discussion Quiz Written Assignment</td>
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<td>9. Database Auditing Models</td>
<td>Chapter 7</td>
<td>Discussion Quiz Written Assignment</td>
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<td>10. Application Data Auditing</td>
<td>Chapter 8</td>
<td>Discussion Quiz Written Assignment</td>
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<tr>
<td>11. Auditing Database Activities</td>
<td>Chapter 9</td>
<td>Discussion Quiz Written Assignment</td>
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<tr>
<td>12. Security and auditing</td>
<td>Chapter 10</td>
<td>Discussion Quiz Written Assignment</td>
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*subject to change at discretion of instructor*
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<tr>
<th>13. Advanced Topics</th>
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<td>14. Final Exam</td>
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