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INSTRUCTOR
Name: Dr. Ramaswamy Chandramouli (Mouli)
Email: rchandr2@gmu.edu (preferred method of communication)
Phone: (301) 458-5743 (Cell)
Virtual Office Hours: By appointment via Blackboard Collaborate
I check my phone messages and email periodically between 9 AM Monday and 6 PM Friday. During this 5 day period, I will respond to student inquiries within 24 hours.

Identity and Access Management – Fall 2021
COURSE DURATION & SCHEDULE

Week Start: Monday Morning – August 23, 2021

Week Ending: Saturday Midnight – Dec 4, 2021

Total Number of Weekly Lecture Sessions: 13

Important Dates:
- Mid Term Exam: Wednesday, October 13, 2021 (No Lecture posting for the Week of Oct 11-17, 2021)
- Fall Break: Nov 24-28, 2021 (No Lecture posting during this week)
- Final Exam: Wednesday, Dec 8, 2021 (7:30 -9:30 PM)

COURSE DESCRIPTION

This course has 13 lectures – the first 8 lectures will be on identity-related topics, the next four lectures will be devoted to access control/management and the last one will be on the topic of privacy. On both Identity & Access Control topics, three facets will be presented - concepts, standards/frameworks/models and technology. Coverage of identity-related topic will include definition of terms (identity, identifier, credentials, etc..), digital identity frameworks, identity federation, authentication protocols, the role of smart cards/PKI and biometrics. The study of access control/management will start from structures for representing access control information and proceed to access control policies & models. We will have an in depth look at two widely used access control models – RBAC and ABAC. Finally, we look at Identity and Access control solutions for cloud environments and wrap our study with a look at privacy issues in Identity and Access control.

COURSE EXPECTATIONS

1. Working online requires dedication and organization. Proper preparation is expected every week. You are expected to log in to the course each week and complete the assignments and activities on or before the due dates.

2. Students must check their GMU email messages on a daily basis for course announcements, which may include reminders, revisions, and updates.

3. It is expected that you will familiarize yourself with and adhere to the Honor Code. Student members of the George Mason University community pledge not to cheat, plagiarize, steal, and/or lie in matters related to academic work.

LATE SUBMISSION/MAKE-UP/EXTRA CREDIT/INCOMPLETE

Students who are likely to miss the due date for the quizzes must inform the instructor at least one day prior to the due date and obtain permission for fulfilling the requirement before the end of the subsequent week. Students, who cannot take the mid-term exam on the designated week, must obtain prior permission and obtain a make-up date. No late submission is allowed on the Research paper due at the end of the semester.

Because of the tight workload, there is no policy regarding Extra Credit for this course. Incomplete Grade can only be granted if the student provides written request and/or documentary evidence pertaining to medical or family conditions that may prevent the student from completing the work assignments for the course before the end of the course schedule.

NATURE OF COURSE DELIVERY

The format of this online course is asynchronous. The course is structured around 13 set of weekly sessions made Identity and Access Management – Fall 2021
up of Lecture Slides, Posted Readings and Readings in Web Links. Content & Discussion boards regarding modules for a given week will be posted either on Saturday or Sunday before the start of the week.

**EXPECTED WORKLOAD**
The volume and nature of Content & Discussion Boards posted for a given week, will require the students to log in to the course at least four times a week – two for studying and understanding the contents in one or more modules and two for posting answers/participating in discussion in the discussion forums.

**TECHNOLOGY REQUIREMENTS**

**Hardware**
You will need access to a Windows or Macintosh computer with at least 2 GB of RAM and to a fast, reliable broadband Internet connection (e.g., cable, DSL). For optimum visibility of course material, the recommended computer monitor and laptop screen size is 13-inches or larger. You will need computer speakers or headphones to listen to recorded content. A headset microphone is recommended for live audio sessions using course tools like Blackboard Collaborate. For hardware and software purchases, visit Patriot Computers.

**Software**
Web browser (See Blackboard Support for supported web browsers)  
Blackboard Courses (Log into http://mymason.gmu.edu, select the Courses Tab)  
Blackboard Collaborate (select from the course menu)  
Adobe Acrobat Reader (free download)  
Flash Player (free download)  
Microsoft Office (purchase)

**Note:** If you are using an employer-provided computer or corporate office for class attendance, please verify with your systems administrators that you will be able to install the necessary applications and that system or corporate firewalls do not block access to any sites or media types.

**COURSE MATERIALS**
1. There is no prescribed Text Book for the Course  
2. Course Material consists of:  
   (a) Topic Lecture Slides  
   (b) Reading Materials Posted on the Blackboard  
   (c) Reading Materials in the Web Links

**LEARNING OUTCOMES**
At the end of this course, students will be able to:
1. Understand the semantics and principles behind terms and concepts in Identity Management  
2. Understand the players and building blocks of Identity Management frameworks including Identity Federation  
3. An overview of the standards spanning different areas of Identity Management  
4. In-depth understanding of some of the Key Identity Verification (Authentication) technologies such as Authentication Protocols, PKI, Smart Tokens and Biometrics
<table>
<thead>
<tr>
<th>Week #</th>
<th>Readings</th>
<th>Assessments</th>
</tr>
</thead>
</table>
| Lecture Week 1 | 1. Welcome Message  
2. Syllabus for Fall 2021  
3. Week 1 – Module 1 – Identity Management – Terms & Concepts  
| Lecture Week 2 | Week 2 – Digital Identity Framework  
Assignment -2 (*Topic: Identity Federation*) | Assignment -2 (*Topic: Identity Federation*) |
| Lecture Week 3 | Week 3 - Identity Federation – Evolution & Concepts  
Assignment -3 (*Topics: PKI, Smart Cards & Authentication Systems*) | Assignment -3 (*Topics: PKI, Smart Cards & Authentication Systems*) |
| Lecture Week 4 | Week 4 - Identity Federation Standards – SAML & OAuth  
Assignment -4 (*Topics: Access Control Concepts*) | Assignment -4 (*Topics: Access Control Concepts*) |
| Lecture Week 5 | Week 5 – Role of Certificates and PKI in Authentication  
Assignment -5 (*Topics: RBAC & ABAC implementations*) | Assignment -5 (*Topics: RBAC & ABAC implementations*) |
| Lecture Week 6 | Week 6 – Role of Smart Cards and US Govt PIV Program  
Assignment -6 (*Topics: Identity & Access Control in Cloud Environments*) | Assignment -6 (*Topics: Identity & Access Control in Cloud Environments*) |
| Lecture Week 7 | Week 7 – Overview of Authentication Systems  
Assignment -7 (Research Paper due on Dec 8 Midnight) | Assignment -7 (Research Paper due on Dec 8 Midnight) |
| MID TERM EXAM  | ON LINE  
Mid Term Exam (Open Notes) – All Topics discussed in Lecture Weeks 1 to 7 | Mid Term Exam (Open Notes) – All Topics discussed in Lecture Weeks 1 to 7 |
| Lecture Week 8 | Week 8 – Role of Biometrics  
Assignment -8 (Final Exam Closed Notes) – All Topics discussed in Lecture Weeks 8 to 13 | Assignment -8 (Final Exam Closed Notes) – All Topics discussed in Lecture Weeks 8 to 13 |
| Lecture Week 9 | Week 9 – Introduction to Access Control & Structures  
Assignment -9 (Research Paper due on Dec 8 Midnight) | Assignment -9 (Research Paper due on Dec 8 Midnight) |
| Lecture Week 10| Week 10 - Access control Policies & Models  
Assignment -10 (Identity & Access Control in Cloud Environments) | Assignment -10 (Identity & Access Control in Cloud Environments) |
| Lecture Week 11| Week 11 - RBAC and ABAC  
Assignment -11 (Privacy Policies) | Assignment -11 (Privacy Policies) |
| Lecture Week 12| Week 12 - Identity & Access Control in Cloud Environments  
Assignment -12 (Research Paper due on Dec 8 Midnight) | Assignment -12 (Research Paper due on Dec 8 Midnight) |
| Lecture Week 13| Week 13 - Privacy, PII & Privacy Policies  
Research Paper due on Dec 8 Midnight | Research Paper due on Dec 8 Midnight |
| FINAL EXAM –  | ON LINE  
Final Exam (Closed Notes) – All Topics discussed in Lecture Weeks 8 to 13 | Final Exam (Closed Notes) – All Topics discussed in Lecture Weeks 8 to 13 |
**GRADE DISTRIBUTION**

<table>
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<tr>
<th>Nature of Assignment</th>
<th>Due Date</th>
<th>Location</th>
<th>Percentage Weight</th>
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<tbody>
<tr>
<td>Assignment - 1</td>
<td>Sept 12, 2021</td>
<td>Blackboard</td>
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<tr>
<td>Assignment - 2</td>
<td>Sept 26, 2021</td>
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<tr>
<td>Assignment - 3</td>
<td>Oct 10, 2021</td>
<td>Blackboard</td>
<td>5%</td>
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<td>Mid Term Exam</td>
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</tr>
<tr>
<td></td>
<td>(2 Hour Slot)</td>
<td></td>
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<td>Assignment - 4</td>
<td>Nov 7, 2021</td>
<td>Blackboard</td>
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<td>Assignment - 5</td>
<td>Nov 14, 2021</td>
<td>Blackboard</td>
<td>5%</td>
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<tr>
<td>Assignment - 6</td>
<td>Nov 21, 2021</td>
<td>Blackboard</td>
<td>5%</td>
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<td>Research Paper</td>
<td>Dec 5, 2021</td>
<td>Blackboard</td>
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</tr>
<tr>
<td>Participation</td>
<td>Continuous</td>
<td>On-line Discussion Forum</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Dec 8, 2021</td>
<td>Blackboard</td>
<td>20%</td>
</tr>
</tbody>
</table>

**GRADING**

Grades will be awarded in accordance with the Mason Grading System for graduate students. See the University Catalog for policies: [http://catalog.gmu.edu](http://catalog.gmu.edu) for more information.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage Range</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>A+</td>
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<td>Passing</td>
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<table>
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<tr>
<th>Grade</th>
<th>Range</th>
<th>Status</th>
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<tbody>
<tr>
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<td>Passing</td>
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<tr>
<td>A-</td>
<td>90-92</td>
<td>Passing</td>
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<tr>
<td>B+</td>
<td>87-89</td>
<td>Passing</td>
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<tr>
<td>B</td>
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<tr>
<td>B-</td>
<td>77-82</td>
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<tr>
<td>C</td>
<td>70-76</td>
<td>Passing</td>
</tr>
<tr>
<td>F</td>
<td>0-69</td>
<td>Failing</td>
</tr>
</tbody>
</table>

**STUDENT EXPECTATIONS**

- Students must follow the guidelines of the University Honor Code. See [http://oai.gmu.edu/themason-honor-code-2/](http://oai.gmu.edu/themason-honor-code-2/) for the full honor code.
- Students must follow the university policy for Responsible Use of Computing. See [http://universitypolicy.gmu.edu/university-policies/computing/](http://universitypolicy.gmu.edu/university-policies/computing/)
- Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester [See [http://ods.gmu.edu/](http://ods.gmu.edu/)].
- Students are responsible for the content of university communications sent to their George Mason University email account and are required to check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account. [See [https://thanatos.gmu.edu/masonlive/login](https://thanatos.gmu.edu/masonlive/login)].
- Students are expected to be aware of GMU’s Social Media “best practices” guidelines: [http://webdev.gmu.edu/Social_Media_Guidelines](http://webdev.gmu.edu/Social_Media_Guidelines)

**CAMPUS RESOURCES**

**University Libraries**
University Libraries provides resources for distance students. [See [http://library.gmu.edu/for/distance](http://library.gmu.edu/for/distance)]

**Writing Center**
The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing. [See [http://writingcenter.gmu.edu](http://writingcenter.gmu.edu)]. You can now sign up for an Online Writing Lab (OWL) session just like you sign up for a face-to-face session in the Writing Center, which means YOU set the date and time of the appointment! Learn more about the [Online Writing Lab (OWL)](http://library.gmu.edu/for/distance) (found under Online Tutoring).

**Counseling and Psychological Services**
The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g.,

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individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See http://caps.gmu.edu].

Family Educational Rights and Privacy Act (FERPA)
The Family Educational Rights and Privacy Act of 1974 (FERPA), also known as the "Buckley Amendment," is a federal law that gives protection to student educational records and provides students with certain rights. [See http://registrar.gmu.edu/privacy].

RECOMMENDATIONS

RELIGIOUS HOLIDAYS
A list of religious holidays is available on the University Life Calendar page (http://ulife.gmu.edu/calendar/religious-holiday-calendar/). Any student whose religious observance conflicts with a scheduled course activity must contact the Instructor at least 2 weeks in advance of the conflict date in order to make alternative arrangements.