CIS 8401: Mobile Applications Development

Prerequisites:

CSP 7,8; CIS 8050
(Please check with Upkar Varshney if you wish to take CIS 8401 without having taken CIS 8050.)

Catalog Description:

This course provides an in-depth coverage of mobile commerce including frameworks, applications, requirements, location-based services, group-oriented services, transaction management, content and pricing, business model and emerging m-commerce services. The coverage will include both technical and applications-oriented topics.

Detailed Course Description:

With the emergence and wide spread adoption of wireless and mobile networks, devices, and middleware, mobile commerce applications are beginning to receive some interest in IS community. In many European countries and Japan with significant wireless penetration, the mobile commerce market is already taking off and reaching billions of dollars a year. It is to be noted that mobile commerce may require significantly different approaches in design, development, and implementation of applications due to the inherent characteristics of wireless networks and mobile devices. The proposed course will bring together many challenges and solutions in mobile commerce including requirements and multi-layer frameworks, current and emerging mobile commerce services such as mobile financial services, mobile entertainment services, and location-based m-commerce services. Group-oriented mobile commerce services: and transactions management will also be discussed in detail. Management of mobile commerce services and business models and revenue management among multiple players will also be included. As m-commerce is going through many advances, many near and long-term issues such as the role of emerging wireless LANs and 3G/4G wireless networks, personalized content management, implementation challenges in m-commerce, futuristic m-commerce services will also be discussed.

Text:

2. Slides, notes, and papers available from course website (http://www.cis.gsu.edu/~uvarshne/)

Useful References:
1. Mobile Commerce and Applications, Upkar Varshney, A tutorial at IEEE International Conference on Wireless Communications (WCNC)
3. Location-based Mobile Commerce Services, ACM Transactions on Internet Technology, August 2003, (Upkar Varshney)
5. Group-oriented Mobile Services, ACM/Kluwer Journal on Mobile Networks and Applications (MONET), 2004 (Upkar Varshney)

Learning Objectives:

After completing this course successfully, a student should have:

· A broad knowledge of mobile commerce applications and technologies
· A high-level understanding of requirements of diverse m-commerce services
· The skills to identify and design the infrastructure-support for mobile commerce services
· A critical knowledge of wireless infrastructure for location-based services
· A high-level knowledge of management challenges in mobile commerce services
· An understanding of multiple factors in adoption and usage of mobile commerce services
· A global and integrated view of the emerging mobile commerce services
· Skills to produce a high-level design of infrastructure for mobile commerce applications
· An awareness of emerging trends and development in mobile commerce

Attendance & Class Participation:

You are expected to attend the class regularly. My experience has always been that students learn the most when they come to the class and interact. 5% of your grade will be based on class participation.

3 factors leading to a higher score

· Positive attitude in the class
· Advance reading of the material to be covered in the class
· Attentiveness in the class to learn new material

3 factors leading to a lower score

· Unjustified and frequent absences from the class
· Disruptive behavior (including talking to other students during a lecture)
Cheating

Grading: the following point allocation will be used:

- Quiz 1: 40 points (10%)
- Mid-term Exam: 100 points (25%)
- Quiz 2: 40 points (10%)
- Final Exam: 100 points (25%)
- Reports/Projects: 100 points (25%)
- Class participation: 20 points (5%)

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Total                                                                 400 points (100%)

A >= 90           >          B >=80            >          C >= 70           >         D >= 60           >F

Late Work:

Assignments must be turned in at the beginning of class on the date due. Each additional working day will cause a 25% reduction of grade as the late penalty.

Lecture Plan (subject to change as needed)

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Topics</th>
<th>Readings/Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction to m-commerce (emerging applications, wireless service providers, middleware, wireless infrastructure, different players in m-commerce, and m-commerce life cycle)</td>
<td>Textbook, Paper 4</td>
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<tr>
<td>2</td>
<td>Requirements and multi-layer frameworks (wireless and networking requirements, quality of service, location-management, security, dependability)</td>
<td>Textbook, Paper 2</td>
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<tr>
<td>3</td>
<td>Mobile financial services, mobile entertainment services, and proactive service management (service details and usage scenarios)</td>
<td>Textbook, Paper 2</td>
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<td>4</td>
<td>Location-based m-commerce services: part I (location, context and user-oriented services, location management in heterogeneous wireless and mobile networks)</td>
<td>Textbook, Paper 3</td>
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<td>5</td>
<td>Location-based m-commerce services: part II (push/pull services, role of middleware in location-</td>
<td>Textbook, Paper 3</td>
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<td>based services, location-enabled devices)</td>
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<td>6</td>
<td>Group-oriented mobile commerce services: Part I (mobile auctions, mobile entertainment services, multi-party games)</td>
<td>Textbook, paper 5</td>
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<td>7</td>
<td>Group-oriented mobile commerce services: Part II (wireless multicast and broadcast, multicast in wireless LANs, satellites, and cellular systems, multicast in wireless Internet)</td>
<td>Textbook, paper 5</td>
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<td>Midterm</td>
<td>Midterm</td>
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<td>9</td>
<td>Transactions in mobile commerce services: part I (group communications, membership management, transaction support, dis-connection and multi-stage transactions)</td>
<td>Textbook</td>
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<tr>
<td>10</td>
<td>Transactions in mobile commerce services: part II (impact of failures on transactions, security and reliability of transactions)</td>
<td>Textbook</td>
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<tr>
<td>11</td>
<td>Management of mobile commerce services (content development and distribution to hand-held devices, content caching, pricing of mobile commerce services)</td>
<td>Textbook, paper 1</td>
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<td>12</td>
<td>Business models and revenue management among multiple players, existing models for DoCoMo’s iMode</td>
<td>Textbook, paper 1</td>
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<tr>
<td>13</td>
<td>Adoption of mobile commerce services, current and most popular m-commerce services, differences in European and American approaches to m-commerce</td>
<td>Textbook, paper 1</td>
</tr>
<tr>
<td>14</td>
<td>The emerging issues in mobile commerce (The role of emerging wireless LANs and 3G/4G wireless networks, personalized content management, implementation challenges in m-commerce, futuristic m-commerce services)</td>
<td>Textbook, paper 1</td>
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<tr>
<td>Final Exam</td>
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**Assignments:**

1. All assignments are to be typed, carefully written and edited.
2. All assignments must reflect your individual efforts only. Any copying, cheating, or plagiarism will not be tolerated. The departmental and college policies for cheating will be followed for anyone caught in such offenses.
3. Assignments will be graded for form as well as content.
4. Errors in spelling, grammar, or syntax can detract from or distort the message you are trying to communicate. As a result, such errors may reduce your grade.

**Behavior in the Class:**

1. Any disruptive behavior in the class will lead to a reduction in class participation points.
2. I love to answer questions, but if you have lots of questions due to previously missed lectures or other reasons, I suggest that you talk to me before or after the class.