Credits: 3  
Instructor: ChunSheng Xin  
Office: Kaufman 231C  
Phone: (757) 683-5294  
Email: cxin@odu.edu  
Classroom: GORNTO 221  
Class Hours: Tuesdays, 4:20 – 7 PM  
Office Hours: Tuesdays and Thursdays, 2:30 – 4:00 PM or by appointment  
Prerequisite: ECE 642  
C/C++/Java (recommend)  

Course Description and Objectives:  
This is an advanced graduate-level communication networking class focusing on cutting-edge technologies. Students will learn how to apply the fundamental knowledge to improve the network performance. The entire semester is divided into two parts: lectures and presentations. The objectives of this course are to:  
- Learn how to identify research problems and apply the fundamental knowledge to solve problems  
- Understand the significance of information security and develop network security protocols  
- Study the fundamentals of mobile ad hoc networks and wireless networks  
- Explore the technique of network programming  
- Learn how to control communication networks  
- Examine the mechanisms of network performance analysis and improvement  
- Learn the usage of network simulation tools, such as ns-3.  

Tentative schedule:  

<table>
<thead>
<tr>
<th>Week</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>1</td>
<td>Lecture, Term paper assignments, reading: Ch. 1, 2, 7</td>
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<tr>
<td>2</td>
<td>Lecturer, Presentation of term paper plan, Reading: ATM networks</td>
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<td>3</td>
<td>Lecture, programming assignment, 2-page term paper plan due, submit a list of at least 15 reference papers.</td>
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<tr>
<td>Date</td>
<td>Event Description</td>
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<td>4</td>
<td>Presentation of term paper progress, reading: Ch. 3, 13</td>
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<tr>
<td>5</td>
<td>Lecturer, Reading: Ch. 6, 19</td>
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<td>6</td>
<td>Lecturer, Programming assignment due</td>
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<tr>
<td>7</td>
<td>Presentation of term paper progress, Term-paper preliminary version of Sections 1, 2, and 7 due</td>
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<td>8</td>
<td>Midterm</td>
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<td>9</td>
<td>Spring break (no class)</td>
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<td>10</td>
<td>Presentation of term paper progress, Reading: Ch. 11</td>
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<td>11</td>
<td>Lecturer</td>
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<td>12</td>
<td>Presentation of term paper progress, Reading: Ch. 20</td>
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<tr>
<td>13</td>
<td>Lecturer</td>
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<td>14</td>
<td>Presentation of term paper progress, Reading: Ch. 10</td>
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<td>15</td>
<td>Lecturer, Full term paper due</td>
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<td>16</td>
<td>Final Exam</td>
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**Tentative Topics:**

- Packet-switched networks
- TCP/IP
- Congestion control
- ATM networks
- Cognitive radio networking
- Switch & router architectures
- WLAN and mobile IP
- Bluetooth networks
- Wireless mesh networks
- Packet queues and delay analysis
- Wireless sensor networks
- Network security
- Quality of service
- Resource allocation

**Required Work:**

- Programming assignment (5%)
- Quizzes (10%)
- Term paper presentations (10%)
- Term paper (40%)
- Mid-term exam (15%)
• Final exam (20%)

Academic Honesty:
Students are expected to follow the ODU Honor Code for all assignments, projects, term papers, and examinations. All work that you turn in with your name on it should reflect your work; references are provided at the appropriate places. A first offense will result in the homework/examination/paper grade of zero for all participants. A second offense will result in a grade of F for the course for all participants.

Disability Statement:
If there is any individual in this class who is in need of academic accommodations because of disabilities, please make an individual appointment in the first week of class with the instructor to discuss accommodations. Upon individual request, this syllabus can be made available in alternative forms.

ODU Email accounts:
Please activate your email account. Important information about the class will be announced through your ODU email.

Attendance Policy:
*It is mandatory to attend all classes.* Two points will be subtracted from your final record for one absence. Should an emergency cause the absence, the instructor needs to be notified as soon as possible.

Make-up Examinations
Examinations can be re-arranged ONLY if you have a physical problem evidenced by your doctor's prescription.

Questions to Your Grades
You may request to reevaluate your examinations, term paper, and other course materials if you have any question to your course grade. This request must be formally submitted to the instructor within 14-workday after the grade was assigned.