

# GEORGIA INSTITUTE OF TECHNOLOGY

College of Computing

## CS8803J — High-Performance Communication

Spring 2002

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CS8803J Handout #1  
Introduction and Syllabus

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Issued: January 4, 2002

- Instructor:** Prof. Ken Mackenzie `kenmac@cc.gatech.edu`  
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- Web:** [http://www.cc.gatech.edu/classes/AY2002/cs8803j\\_spring/](http://www.cc.gatech.edu/classes/AY2002/cs8803j_spring/)
- Lecture:** MW9-10 in CCB 102
- Text:** There is no text. Documentation and papers from the professional literature will be made available in class.
- Description:** This project-based course covers issues in high-performance computer communication architecture and operating systems with a focus on implementations based on emerging network processor components. In the course you will learn about network interfaces and networking components in both wide-area (IP) and cluster/multiprocessor contexts. The course includes a substantial laboratory component using Intel IXP1200 network processor hardware and a final project tailored to individual student interests.
- Audience:** Graduates or advanced undergraduates.
- Topics:** High-throughput packet switching, routing.  
Low-latency communication in multicomputers and clusters.  
Network interface hardware and operating system issues.  
Network processors with the IXP1200 as an example.
- Prerequisites:** You should have a background in architecture (CS4290/CS6290), networking (CS4251) or operating systems (CS6210) with a “working knowledge” of the other two.
- Assignments:** 3 laboratory homeworks  
rotating “lecture scribe” duty  
1 final project with paper and presentation
- Grading:** 45% Laboratory homeworks (15/15/15%)  
40% Final project  
10% notes from scribe duty  
5% Class participation

## Tentative Calendar

<i>(Jan)</i>	<b>7</b> <i>first class</i>	<b>9</b>
	<b>14</b>	<b>16</b>
	<b>21</b> <i>Holiday</i>	<b>23</b> Project 1 due
<i>(Feb)</i>	<b>28</b>	<b>30</b>
	<b>4</b>	<b>6</b>
	<b>11</b>	<b>13</b> Project 2 due
	<b>18</b>	<b>20</b>
<i>(Mar)</i>	<b>25</b>	<b>27</b>
	<b>4</b> <i>Spring Break</i>	<b>6</b> <i>Spring Break</i>
	<b>11</b>	<b>13</b> Project 3 due
	<b>18</b>	<b>20</b>
<i>(Apr)</i>	<b>25</b>	<b>27</b>
	<b>1</b>	<b>3</b>
	<b>8</b>	<b>10</b>
	<b>15</b>	<b>17</b>
	<b>22</b>	<b>24</b> Final project due

**Projects:** The class is project-oriented. There are three warmup projects and then a student-selected final project. The warmup projects are intended to introduce all the tools and concepts needed for the final project.

**Late Policy:** Projects are due at the beginning of the class indicated. Late projects will not be accepted.

**Final Project:** The expected form of a final project is for a group of one or two students to implement and evaluate a system based on the hardware and software introduced in class. In most cases, ideas for projects will fall naturally from the students' research area and interests. All projects will include a 10-12 page paper and an oral presentation to the class.

**Collaboration:** Unless specifically indicated otherwise, collaboration on projects in **pairs** is welcome and encouraged. If you work in a pair, turn in one write-up with the names of both collaborators. You are welcome to discuss high-level concepts with other groups, but all homework/project solutions must be worked out and written up separately.