CSE 5304 / ECE 6095
High-Performance Parallel Computing
Spring 2026

Class Meeting Time: *Hybrid*
Monday, 11am-2pm in ITE 330 (or WebEx)

Instructor:
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Course Overview:
With the aggressive adoption of massively parallel processors, parallel computing is no longer a forward-looking research topic, rather it has come mainstream. This course focuses on how to architect, design and to program massively parallel processors, with focus on GPUs. Accordingly, the course caters both to students interested in writing performance efficient parallel software, and to those interested in parallel architectures.

Tentative Schedule:
1. Parallel architectures and computing models
2. Throughput-oriented parallel architecture
3. Patterns of parallel computing
4. Shared memory and cache coherence
5. Memory consistency models
6. Caches and memory hierarchy
7. Interconnection networks-on-chip

The course will comprise lectures, readings, a programming component that will involve programming and performance analysis using GPUs. The students will do a final project at the end of the term.

Grading Policy:

Programming Assignments	60%
Project	15%
Research Paper Review	5%
Final Exam	20%