Prerequisites and Course Description

- **Prerequisites**
  - CSCI 280 (Digital Logic Design)
  - classified graduate-level standing or permission of instructor

- **Course Description**
  - graduate-level course that focuses on advanced topics in the design and analysis of computer architectures
  - designed to facilitate investigation of techniques of quantitative analysis and evaluation of modern computing systems
  - emphasis is on the major component subsystems of high performance computers: pipelining, instruction-level parallelism, memory hierarchies, storage systems, and network-oriented interconnections
  - students will have an opportunity to conduct research
**Intel Itanium 2 (McKinley) Processor**

- **Features:**
  - 221 million transistors (~US adult population)
  - How are they used?
  - What will we do as transistor counts grow?

- **Note:**
  - Most of chip is used for memories, instruction decoding, dynamic scheduling, ...
  - Why is it this way?
  - How much faster would it be if more of the area went to actual processing?

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**Levels of Design & Abstraction**

- **HW/SW interface**
- Application Programs
- Instruction Set Architecture (ISA)
- Processor microarchitecture
- Functional units
- Boolean Logic (the digital abstraction)
- Logic gates (building blocks)
- Device Structures (floor)
- Manufacturing Process (foundation)
- Physics of the Universe (bedrock)
Online Registration Information

- **Online syllabus**
  http://www.ecst.csuchico.edu/~juliano/csci380

- **CSUC Online Computer Science Program**
  - Archived Spring Semester 2003 for availability as a rolling enrollment, special session, self-paced course
  - For detailed information on how to sign up for this course as a distance education student, please contact
    
    CSUC Center for Regional and Continuing Education
    400 West First Street
    Chico, CA 95929-0250
    URL: http://www.rce.csuchico.edu/
    E-mail: rce@csuchico.edu
    Tel.: 530 898-6105

Professor of Instruction

- **Dr. Juliano** (a.k.a. “Dr. J”)

  Snail-mail address:
  Department of Computer Science
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  E-mail: juliano@ecst.csuchico.edu
  URL: http://www.ecst.csuchico.edu/~juliano
       http://www.ecst.csuchico.edu/~juliano/Teaching

  Tel.: 530 898-4619 office
       530 898-6442 department
  Fax.: 530 898-5995
Course Textbook

- Required Textbook
  Computer Architecture: A Quantitative Approach, 3/e
  J.L. Hennessy & D.A. Patterson, 2003
  Morgan Kaufmann Publishers,
  San Francisco, California.
  ISBN 1-55860-596-7

- Recommended Supplement
  Computer Organization and Design, 2/e
  D.A. Patterson & J.L. Hennessy, 1997
  Morgan Kaufmann Publishers,
  San Francisco, California
  ISBN 1-55860-428-6

Additional Requirements

- CSUC’s Chico State Connection (CSC) Portal
  http://portal.csuchico.edu
  personalized secure site that provides students, faculty, and
  staff with convenient online services such as email, add and
  drop classes, print unofficial transcripts, and more.

- CSUC WebCT
  http://online.csuchico.edu
  online course-specific information including course calendar,
  current grades, course bulletin board, and others.

- Computer Architecture Reading List
  http://www.ecst.csuchico.edu/~juliano/csci380/ReadingList.html
  a list of relevant publications (available electronically)
  ordered by Chapter, provided to supplement the material
  presented in the textbook; materials may also be used in the
  CSCI Department Master’s Examination option.
Grade Evaluation

- **Theoretical Component (50%)**
  - 40% Midterm Exam (around the 7th week in a 16-week semester)
  - 60% Final Exam (around the 16th week)

- **Practical Component (50%)**
  - 100% Written work
    - Critique of 3-5 papers from the Course Reading List
    - Possible peer review/evaluation of individual work
    - Possible written homework

- **Note:** Students are required to earn a C- (70%) or better in **both** the Theoretical and the Practical components; otherwise, the minimum of the scores of the two components will be used to calculate the student's final grade.

For your reference: [http://www.ecst.csuchico.edu/~juliano/Papers/](http://www.ecst.csuchico.edu/~juliano/Papers/)

Additional Information

- **Online resources**
  - [http://www.ecst.csuchico.edu/~juliano/csci380/Slides](http://www.ecst.csuchico.edu/~juliano/csci380/Slides)
    - Lecture notes/slides available in multiple formats

- **Academic integrity**
  - Dr. J's policy on academic integrity is simple: “Course credit will not be received in any case of Academic Dishonesty and may result in failure of the course along with disciplinary action.”

  University Policies and Academic Policies and Regulations are published in CSUC's University Catalog, available online at [http://www.csuchico.edu/catalog/](http://www.csuchico.edu/catalog/)

  CSUC Campus Policies are available from CSUC Student Judicial Affairs at [http://www.csuchico.edu/sjd/policies/](http://www.csuchico.edu/sjd/policies/)

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CSIC 380: Computer Architecture