Programming Languages

Collaborations
Biomedical Big Data for ISU, The Center for Genomic Advocacy, Department of Biology, Department of Earth & Environmental Systems

Community Engagement
Association for Computing Machinery, programming contest, Middle School Science Bowl, High School Summer Honors, Pi Day, Coding Camp, Coder Dojo

Internships
NSA, Naval Surface Warfare Center, ISU SURE, Police Technical, ISU OIT, ISU

Grant Support
National Institutes of Health, National Science Foundation, Indiana Academy of Sciences, University Research Council, Center for Community Engagement

After Graduating
Positions programmer, software developer, software engineer, web, database, data science, systems, networking, mobile, cloud

Where Rolls Royce, myCOI, Hewlett-Packard, IBM, Budweiser, Liberty Mutual, Clabber Girl, FireEye, AIM Specialty Health, Genesys, Vincennes University, Indiana State University (OIT, CS, C&M), Oracle, Google, Los Alamos National Labs, NSA, Lockheed-Martin, ARINC, City of Terre Haute

PhD University of Arizona, University of Miami, UT-Dallas, UC-Merced, UC-Riverside, Louisville

More Information
Homepage - http://cs.indstate.edu
Jeff Kinne - jkinne@cs.indstate.edu
Computer Science

High School
- *Programming* - take a class
- *Math* - do your best
- *For fun* - code.org

Looking for Colleges
- *Apply to* - a few of each of the types that you have a chance of getting into, visit at least one of each type
- *Universities applied to* - check for scholarships (some are not very competitive)
- *Talk to* - people from your HS similar to you who are at different types of colleges
- *Most important* - you feel comfortable, will do well

Picking a Major
- *Options* - keep at least two in mind
- *Related to CS* - IT, CIS, MIS

First Year in College
*Work* - 10-20 hours/week preferred
*Classes* - more important than work

Most important classes - your major

College/University Types

**2 year community college - Ivy Tech**
least expensive, faculty positions not as competitive, might prepare you to transfer to university to finish BS, faculty only need to teach

**Regional university - ISU**
affordable, students of all types, faculty positions competitive, faculty teach and do research, exposure to graduate coursework/research

**Small private - Depauw, Butler**
expensive, mostly strong students, faculty mostly teach / do some research, fewer majors to choose from, not many graduate programs, better brand name

**Research university - Purdue, IU**
affordable, mostly strong students, faculty positions more competitive, faculty mostly do research and get promoted by work with PhD students, large classes supported by armies of PhD students, better brand name

**Ultra-competitive - MIT**
best students, competition amongst students, similar for faculty, can have good financial aid, best brand name

Internships
- Large companies, DOE labs, government, tech companies, [indeed.com](http://indeed.com), university job fairs
- Start looking mid-fall for summer positions
- Look for positions during first year, may not get one

MS Programs
- *End of BS* - apply for jobs, if you get a good one take it, if not MS is a good option
- *ISU* - GA possible - tuition waiver, stipend, experience

Computer Science
- *Meritocracy* - put in more time, you’ll do better
- *Jobs* - yes!
- *Good pay* - yes!
- *But* - you have to enjoy it
- *What it’s like* - programming, debugging, figuring things out, make it faster / more usable / etc., learning new tools / techniques

More Information
Homepage - [http://cs.indstate.edu](http://cs.indstate.edu)
Jeff Kinne - [jkinne@cs.indstate.edu](mailto:jkinne@cs.indstate.edu)
Computer Science BS

All below this line require CS 151

Required for:
- CS major
- CS concentration
- Info Sci concentration
- IT major
- Cybercrime & Security major
- CS minor

All below this line require CS 201

All below this line require CS 202

All below this line require CS 303

Courses offered:
- (f) - fall
- (s) - spring
- (fs) - fall & spring
- (?) - varies
**Academic Concentration**
- 3 600-level courses in Systems and Theory & Algorithms, at least 1 from each

**Professional Concentration**
- **CS Foundations**
- 3 600-level courses in Interconnected Computing and Data Management & Analysis, at least 1 from each

**Bioinformatics Concentration**
- **CS Foundations**
- Biology/Bioinformatics
- 557 Databases (f) or 617 Databases, Data Mining, and Big Data (f)

**Biology/Bioinformatics**
- BIO 581 Genome Science (f)
- BIO 587 Bioinformatics (s)
- BIO 680 Seminar: Evol. & Genetics (?)
- CS 618 Computational Biology (s1)

**Computing Core**
- **Theory and Algorithms**
  - Prereq - 520 or 558
  - 620 Theory of Comp II (s2)
  - 658 Algorithms II (s1)
  - 621 Discrete Struct. II (f1)

- **Systems**
  - Prereq - 556, 571, or 573
  - 671 Operating Systems II (s2)
  - 673 Networking II (f2)
  - 670 Concurrent Prog. (s2)

- **CS Foundations**
  - 500 Programming Fundamentals (fs)
  - 600 Concrete Mathematics (f)

- **Data Management & Analysis**
  - 610 Survey of Programming Languages (s2)
  - 611 Software Specification and Design (f1)
  - 617 Databases, Data Mining, and Big Data (f)
  - 618 Computational Biology (s1)

- **Interconnected Computing**
  - 602 Mobile and Cloud Comp. (s1)
  - 603 Networking and Security (f2)
  - 609 Web Programming and Applications (s)

- **Electives**
  - Some have prereqs
  - Academic concentration oriented

**Concentration courses also**

---

**Culminating Experience - choose 1**
- 685 Software Project (fs)
- 695 CS Research (fs)
- 699 CS Internship (fs)

**Bioinformatics concentration only**
- BIO 692 Research in Bio. (fs) or BIO 699 Master’s Thesis (fs)

**ISU BS students** - cannot take 500 level course if you took the 400 level course for your BS