

# Welcome

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- You are joining a department with ....
  - 25+ Faculty
  - 10+ Staff
  - 90+ Graduate Students
  - 350+ CS & ACT undergraduate majors
  
- We are glad you are here!

# What we do

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- Teach undergraduates
  - CS & ACT Majors
  - Other science/engineering majors
  - Service courses for the university community
- Expand CS knowledge through research
  - Software Engineering
  - Artificial Intelligence, Vision & Bioinformatics
  - Computer Networks & Security
  - High-Performance Computing
- Apprentice graduate students
  - Classes
  - Research & Teaching
  - Mentoring

# Take the initiative!

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- You have considerable freedom, so you must take considerable responsibility.
  - You pick an advisor.
  - You control when you finish (within limits).
  - You know best what is of interest.
  - You decide what comes after Graduate School.
- Cardinal rule:
  - Don't wait to be told what to do!

# Three Degrees

MCS                      Masters in Computer Science  
MS-CS                    Masters of Science in Computer Science  
PhD-CS                   Doctor of Philosophy in Computer Science

Goals / Requirements	MCS	MS-CS	PhD
Advance yourself in the IT industry	Yes	Yes	Better/Fewer
Get paid to teach & do research	No	No	Yes
Minimum time in class	39 hrs	31 hrs	~10-15 hrs*
Approximate total time to degree	2 yrs	2+ yrs	2-4 yrs *
Thesis includes new knowledge	-	No	Yes
Preparation for getting a PhD	No	Yes	-

\* Time beyond that required to get the MS-CS

# Degrees & Scheduling

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- MCS : 39 credit hours
  - Approximately 10 courses
  - All 400 level or above
  - At least 20 hours (5 courses) 500-level or above
- Goal: graduate in 2 years
- Rule of thumb: 5 courses per year

# Degrees & Scheduling

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- MS: 39 credit hours
  - Up to 8 credit hours of thesis work
  - One out-of-department course
  - Approximately 7 other department courses
  - All 400 level or above
  - At least 20 hours (5 courses) 500-level or above
- Goal: graduate in 2 years
- Rule of thumb:
  - 5 courses in the first year
  - 3 courses plus thesis in the second year

# Degrees & Scheduling

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- Ph.D.: 72 credit hours (post-Bachelor's)
  - M.S.  $\Rightarrow$  30 credit hours
  - At least 32 credit hours at CSU
  - 9 credit hours (3 courses) out-of-department
  - Breadth requirement: 3 different 600-level CS courses
  - Exams:
    - Research exam
    - Preliminary exam
    - Defense of dissertation
- Goal: graduate in 3 years post M.S.
- But it's not about the courses, it's about the research

# The Role of Your Advisor

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- Temporary Advisor
  - Initial course selection
  - Describe department research (in general)
  - Answer questions
- Permanent Advisor
  - M.S./Ph.D. thesis advisor
    - Advise you on topics
    - Help you choose a committee
    - Oversee & advise your research
  - General advice:
    - Career decisions
    - Mentoring

# Getting & Keeping an advisor

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- Meeting faculty
  - Classes
  - Research Group Meetings
  - One on one. Shop around, do not be shy.
- Working with Faculty
  - Many of us are relatively informal.
  - Easier communication, more fun.
  - But, informality  $\neq$  lowered expectations.

# Ethics - deserve trust

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- Honesty is the foundation of the University.
- Dishonesty threatens everything we value.

- ~~Do not violate our trust.~~

- ~~Read the appropriate policies.~~  
“A student’s individual graduate advisory committee or an appropriate departmental graduate committee may recommend immediate dismissal or appropriate lesser penalty where the committee determines that the student has engaged in academic dishonesty including but not limited to such acts as cheating, plagiarism, and falsification of data or documents.”  
From the Graduate and Professional Bulletin, 1998-1999

# Value your peers

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- Learning from your peers is not cheating.
- Colleagues are often your best resource.
  - Greater questions
    - Why study this? How does that work?
  - Lessor (but critical) questions.
    - Why doesn't Linux work on my home machine?
  - Key questions.
    - My thesis is about ..., does that make sense?
- Contacts do not end when you leave.
  - This applies to peers including faculty.

# Funding: GRAs

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- Graduate Research Assistantships
  - Work ~20 hrs/wk on externally funded research (grants or contracts)
  - Hopefully, the work is relevant to your thesis
  - Selected by faculty / Principal Investigator
  - Semester by semester, as long as
    - The grant/contract is funded and
    - The faculty advisor is happy

# Funding: Becoming a GRA

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- How do you become a GRA?
  1. Impress a faculty member
    1. Attend research meetings
    2. Get involved in his/her research
    3. Become indispensable
  2. Hope the faculty member gets funded

# Funding: GTAs

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- Graduate Teaching Assistantships
  - Work ~20 hrs/wk assisting a class instructor
    - May include grading
    - May include teaching recitations
    - May include office hours
    - May include giving occasional lectures
  - Exact duties determined by the instructor
    - ... but not more than 20 hours a week (average)
  - Must treat students with respect and take your role as a teacher and mentor seriously

# Funding: Becoming a GTA

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- Some are offered GTA positions to come here
  - Congratulations.
- Otherwise, become indispensable to the research of a faculty member
  - They may recommend you for a GTA position
  - This is your best bet
- Excel in advanced classes
  - Some GTA positions require advanced skills
  - Let the department know you want to be a TA
- Either way: Perform well as a GTA
  - GTA positions are dependent on performance of duties
  - GTA's who don't perform well will not be rehired
  - GTAs are evaluated by their instructors at the end of every semester

# Administrative Specifics

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- Week 1
  - Find and talk with your temporary advisor
  - Register for courses
  - If you are a GTA or GRA,
    - Start (or continue) working with instructor/advisor
    - Complete paperwork with Kim Judith
  - Establish in-state residence
    - If you are domestic and out-of-state
  - Get to know your peers

# Administrative Specifics

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- Month 1
  - Start looking for an advisor
  - Start attending research meetings
  - Taking a course with a semester project?
    - Start working on it *now*.

# Administrative Specifics

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- 1 year
  - Get a research advisor
    - Note that this is a mutual decision
  - MS: Choose a research topic
    - Select a committee with your advisor
  - Ph.D: Choose a research area
    - Prepare for research exam by end of 2<sup>nd</sup> year
    - Select research exam committee with advisor
- Fill out a GS6 form

# Pitfalls: Am I done yet?

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- Undergraduate Degrees
  - You are done after passing required classes.
- Masters of Computer Science (MCS)
  - You are done after passing required classes.
- For the M.S. and Ph.D., you are done when
  - Your advisor says you are done, and ..
  - Your committee agrees.

# More Pitfalls

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- I wrote a lot of code, I must be done.
- I finished my first draft, I must be done!
- I have not spoken to my advisor in a month
  - Everything must be OK? (no!)
- I have most of my thesis written,
  - I'll finish while starting a new job. (not likely!)

# The Biggest Pitfall

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- If you get in official trouble:
  - Academic probation
  - Visa trouble
  - Registration hold
  - ... or other
- Talk to Dale Grit or Bruce Draper or your advisor!
  - Don't trust the advice of your peers in this case

*Remember: we want you to succeed.  
We want you to graduate, write papers,  
and build your career.*

# Again – Welcome!

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- Graduate School is a right of passage
  - Graduate school will change you ...
  - ... and you will change the field.
- You will see computer science differently
  - With a clearer, broader and deeper view ...
  - and confidence in a dynamic field
- The more you invest, the more you will ...
  - ... participate in remaking CS