Educational Planning

- Engineering majors
- Where to transfer
- Courses in first two years
- Transfer information
- Outside of class
- Resources
- Questions?

Engineering Majors

Aerospace

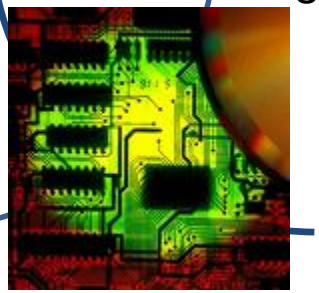
Bioengineering

Civil

Mechanical

Electrical

Comp…
Engin…



Materials Science

Chemical

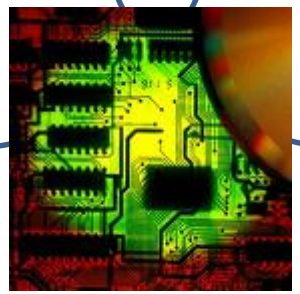
Computer Engineering & Related Majors

Focus on hardware, signals

Focus on software, information

Electrical Engineering

Computer Engineering



Computer Science

Software Engineering, Information Science

Engineering Majors

- Entry level in engineering is a bachelors (BS) degree.
- You must select a specific engineering major when you apply to transfer – plan ahead.
- Don't postpone engineering classes – can help with choice of major.
- Transfer major and school may affect choice of classes starting at calculus.
- Check transfer school/major website for application of AP credit to the major.
- Consider getting AS or AS-T degrees (engineering, physics, math) along the way.
- Except for ENGR 111 and 240 (at Canada only), you can find each course somewhere in the district in fall and spring (e.g. ENGR 100 at CSM in fall and at Canada in spring; ENGR 260 at CSM in spring and at Skyline in fall)

Where to go?

CSU The California State University
WORKING FOR CALIFORNIA

San Francisco State
San Jose State
Cal State East Bay
Sacramento State
Cal Poly San Luis Obispo
Cal Poly Pomona
CSU-Chico
…and 16 more

UNIVERSITY of CALIFORNIA

UC Berkeley
(UCSF)
UC Davis
UC Santa Cruz
UC Merced
UC Santa Barbara
UCLA
UC Irvine
UC Riverside
UC San Diego

Private Schools

Santa Clara University
M.I.T., Stanford (and similar)
Drexel, RPI (and similar)
Olin, Rose Hulman
Northeastern University
… and many more

Where to go?

CSU The California State University
WORKING FOR CALIFORNIA

San Francisco State smaller programs
San Jose State industry, int'l, software
Cal State East Bay only a few majors, IE
Sacramento State big, ce/const mgt
Cal Poly San Luis Obispo hands-on, competitive
Cal Poly Pomona hands-on
Cal Poly Pomona hands-on
…and 16 more

Private Schools

Santa Clara University small classes, active student groups
M.I.T., Stanford (and similar)
Drexel, RPI (and similar)
Olin, Rose Hulman smaller; engineering focus
Northeastern University req'd coop
… and many more

UNIVERSITY of CALIFORNIA

UC Berkeley competitive
(UCSF)
UC Davis more hands-on
UC Santa Cruz EE, cs, game design
UC Merced small, new-ish, bio, envt'l
UC Santa Barbara chem, EE, ME, MatSci
UCLA competitive
UC Irvine game design, CEE capstone
UC Riverside not as competitive
UC San Diego aerospace, structural

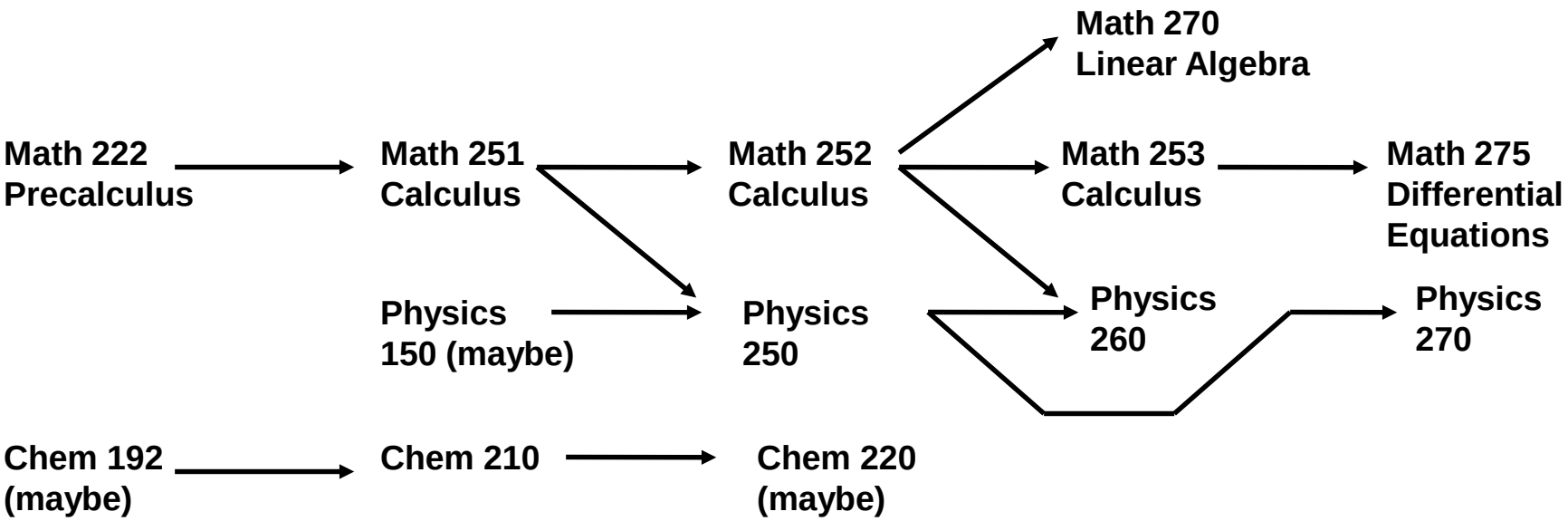
The core courses in most majors are the same at all schools; upper division technical elective offerings vary

What to take before transfer

- Math (5 classes starting with calculus)
- Science
  - 3 physics classes (Phys 270 is a "selective" for some programs)
  - 1 or 2 chemistry classes
  - maybe biology (bioengineering, UCB CEE)

  Consider Math & Science Jam, http://collegeofsanmateo.edu/mathjam/apply.asp
- Engineering (1 to 5 classes)
- Programming (1 to 3 classes)
- General education
  - Engl 100, Engl 110 or 165 (UCB wants 110)
  - Communications for CSU and some UCD majors (COMM 110)
  - UCB, UCD require fewer classes than IGETC
  - Some other UCs recommend keeping a few GE courses for after transfer

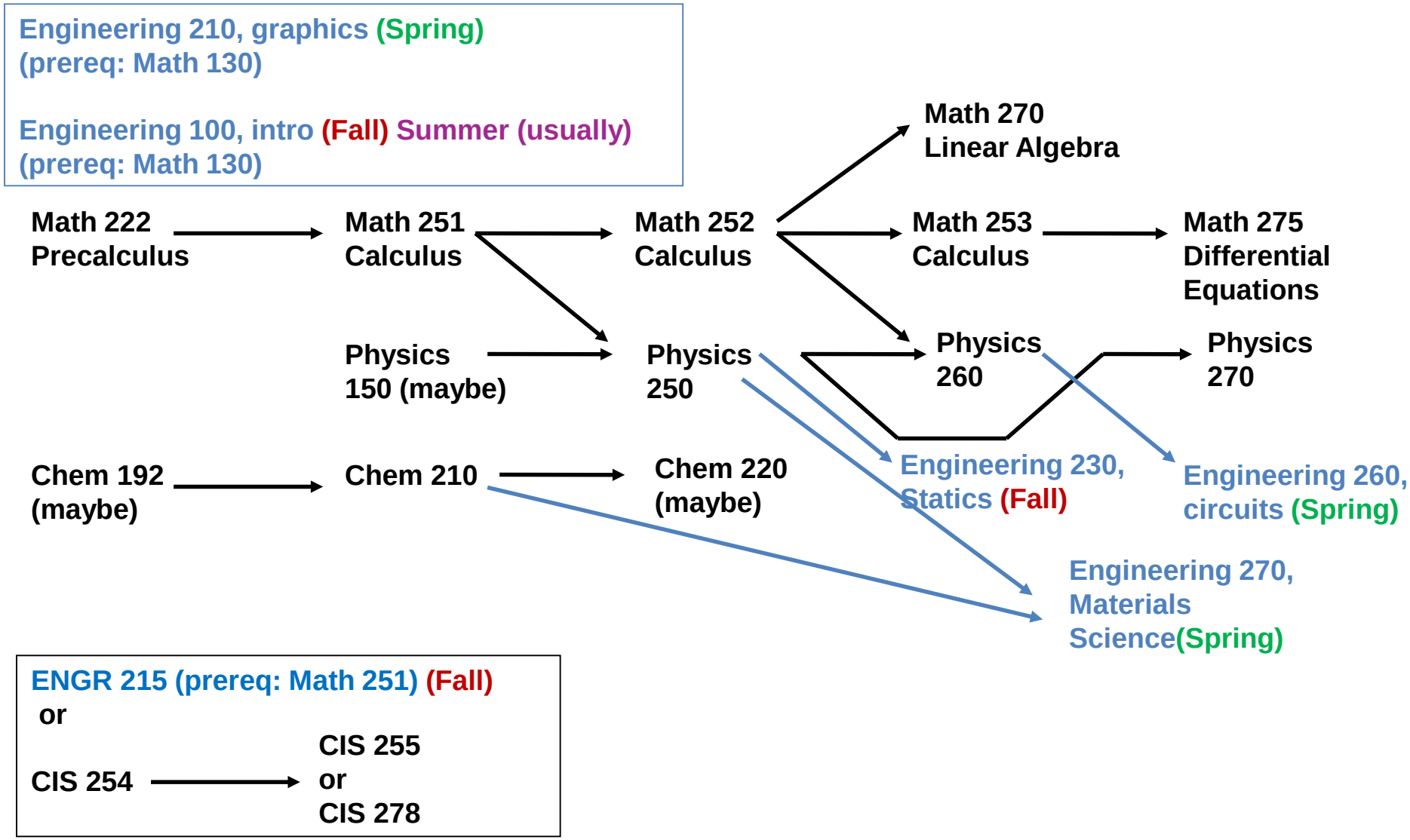
Sequencing of Major Classes Common to Most Engineering Majors



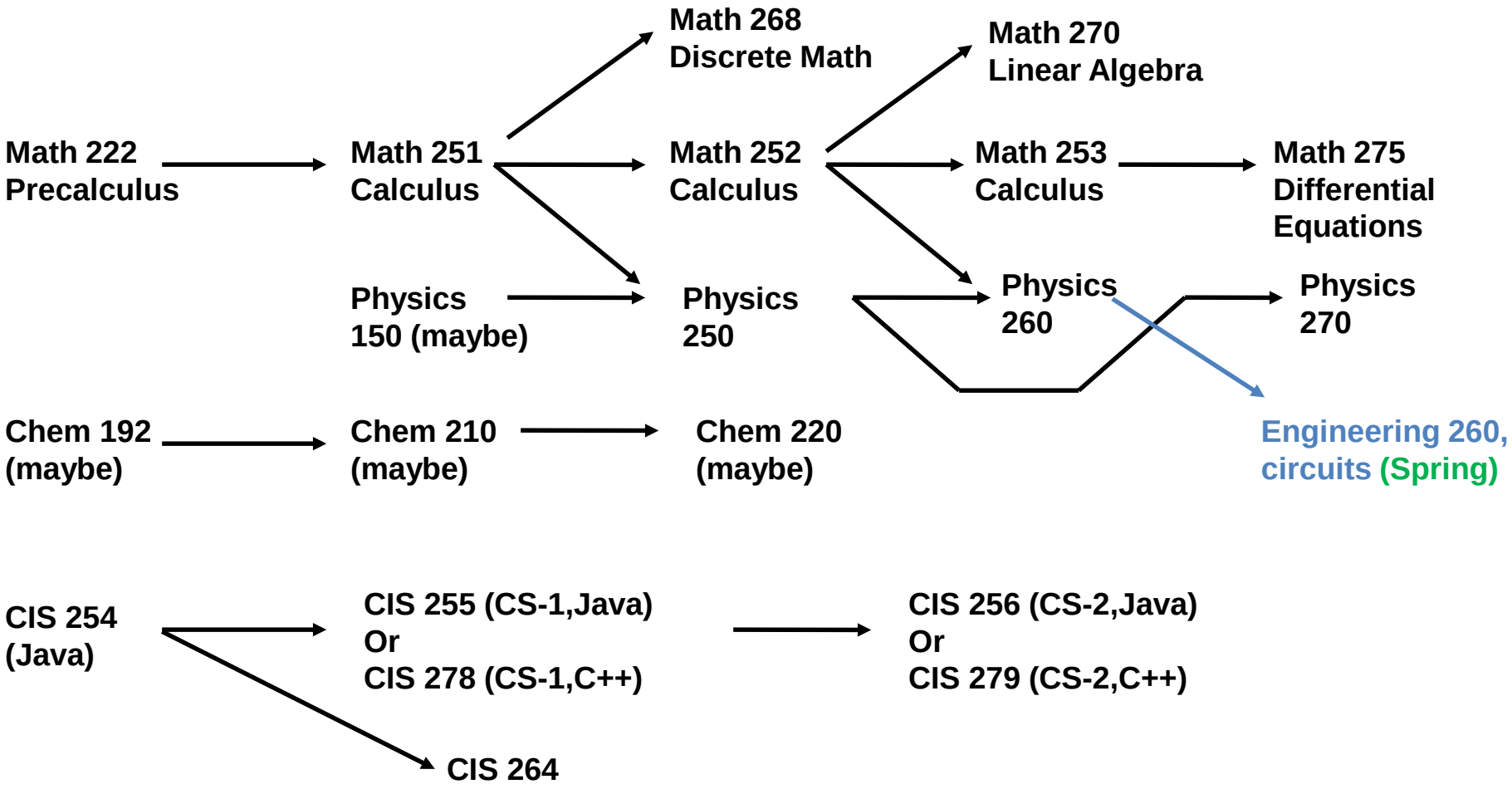
ENGR 215 (prereq: Math 251) (Fall)
or

CIS 254 → **CIS 255 or CIS 278**

Typical Courses for Mechanical Engineering



Sequencing of Major Classes
Computer Engineering (watch for AS-T)



Transfer Information

- At least 60 transferable units including
  - Engl 100, Critical Thinking (UCB: ENGL 110), Communications (CSU), Math; get these done before your last semester at CSM
  - Major prep (IMPORTANT, see www.assist.org)
  - General ed (CSU-GE, IGETC*) *not for some UC engineering
- Plan for fall transfer
  - Consider a Guaranteed Transfer Contract (due Sept before transfer); check the details now.
  - Complete applications in Oct/Nov before transfer
  - Classes taken through the spring before transfer are considered
- Be realistic with loads
  - No more than 3 major classes per term

    (fewer if you work > 20 hours per week)

Transfer units & lower division requirements

- All coursework at community colleges →

  no upper limit on units before transfer
- No more than 70 units are awarded upon transfer.

  This is a **good** thing!
- If you do not complete lower division general education classes before transfer, you will have to do so after transfer (along with upper division requirements).

  Some UCs recommend this.
- In a few cases, courses may fulfill an upper division requirement; you will have to take an alternate upper division course upon transfer. (at some schools applies to one or more of MATH 270, 275; CHEM 231, 232; ENGR 260)

Educational Planning Reminders

- Sequence of classes is **very** important
- Many programs are impacted
- For Cal Poly SLO, use the selection criteria on their website, http://admissions.calpoly.edu/applicants/transfer/criteria.html, rather than assist.org
- Some UC campuses do not require full IGETC (check both admissions and TAG)
- District colleges coordinate programs so that classes are offered each semester

Math 130 prereq:	ENGR 100 (**Su CSM, Fa CSM**, F&Sp Skyline, Sp Canada)
	ENGR 210 (**Sp CSM**, F Canada)
	ENGR 111 (Fa only; Canada; req'd for some civil programs)
Math 251 prereq:	ENGR 215 (**Fa CSM**, Sp Canada)
	ENGR 270 (**Sp CSM** & Skyline, F Canada; requires Chem 210 and Phys 250)
More advanced:	ENGR 230 (**Fa CSM**, Sp Canada; requires Phys 250)
	ENGR 260 (**Sp CSM**, Sp Canada, F Skyline; requires Phys 260)
	ENGR 240 (Fa only; Canada; req'd for some programs)
	See also online mechanics of materials at Cuesta College

Outside of class

- Clubs, CSM activities
- Work
- Student sections of professional societies
  - ASME, ASCE, IEEE, ACM (major-specific; usually after transfer)
  - SWE, SACNES, SHPE, SASE
  - EWB

  (e.g, http://coe.berkeley.edu/students/current-undergraduates/student-involvement/engineering-student-societies.html/)
- Research on campus
  (e.g., https://engineering.ucsb.edu/undergraduate/undergraduate-research-opportunities)
- Summer and part-time jobs and internships
- Friends and classmates
- Personal interests

Resources

- Career Cornerstone http://www.careercornerstone.org/
- Math & Science Jam http://collegeofsanmateo.edu/mathjam/apply.asp
- www.assist.org
- Transfer school websites (especially for Cal Poly San Luis Obispo; http://admissions.calpoly.edu/apply/transfer_sc)
- SB1440 transfer degrees (AA/AS-T)
  see pdf at http://collegeofsanmateo.edu/transfer/
- CSU-GE and IGETC patterns
  http://collegeofsanmateo.edu/forms/counseling.asp
- Transfer Center events http://collegeofsanmateo.edu/transfer/
- Transfer school open house / preview days/webinars

Your questions?

Previous questions– majors, classes, internships

- Which engineering field?

  Robots – **mechanical** or electrical; mechatronics option

  Engineering and art – mechanical engineering

  Mechanical or Civil? – more overlap in content than you might think from major prep
- Engineering beyond ENGR 100 Yes, for nearly all schools/majors (check www.assist.org)
- Is Chem 2xx required for my major? Check www.assist.org
- What major require knowledge of Chemistry? Need chemistry to understand how microstructure affects macroscopic behavior (ENGR 270 – Materials Science). This is important for any kind of engineering that deals with physical systems
- Physics placement based on AP score? Generally start with Phys 250
- Summer jobs, internships apply staring in Nov/Dec; large companies have established programs; smaller companies may be able to set. Examples: NASA, SLAC, LBL, UCB, Lockheed Martin, City/County San Francisco; Caltrans.
- A.S. Engineering prepares for transfer
- A.S. Engineering Technology possible to pick technical classes to lead to employment (e.g. solar power)

Previous questions- transfer

- GPA for transfer http://admission.universityofcalifornia.edu/transfer/preparing-admission/minimum-requirements/index.html says 2.4 or 2.8 (for non-resident); realistically, 3.0 or **higher** (e.g. effective Fall 2017, UCLA engineering minimum gpa for admission consideration is a 3.4; partial IGETC not accepted at UCLA)

  CSU – 2.0 for non-impacted; higher for impacted (SJSU, Cal Poly SLO, others)

  SJSU F16 gpa http://www.sjsu.edu/admissions/impaction/impactionresultstransfer/

- Transfer requirements
  ENGL 100, ENGL 110 or 165, COMM (for CSU and some UCD majors)
  major prep: assist.org or http://admissions.calpoly.edu/applicants/transfer/criteria.html
  general education: depends on transfer school; see assist.org, school's site, counselor
  Out of state? Start with UC Davis major prep; select general ed from IGETC; work with counselor and engineering instructor to match specific courses
- Courses w/o articulation check Canada College (dynamics, surveying); other local CCs; Cuesta for online strength of materials
- Units for transfer 60 minimum; no maximum if all are CC, campus-specific min/max if some are from non-CC; 70 max awarded
- Guaranteed transfer contracts/TAG http://collegeofsanmateo.edu/forms/transfer.asp
  For UC TAG, apply in September before transfer; plan the spring before that (must be able to fit in all req'd courses; general ed requirements may be more extensive). Requirements/schools have changed each year - attend TAG workshop!