Teaching a Class?

Just Stay C A L M

Mike Vicic

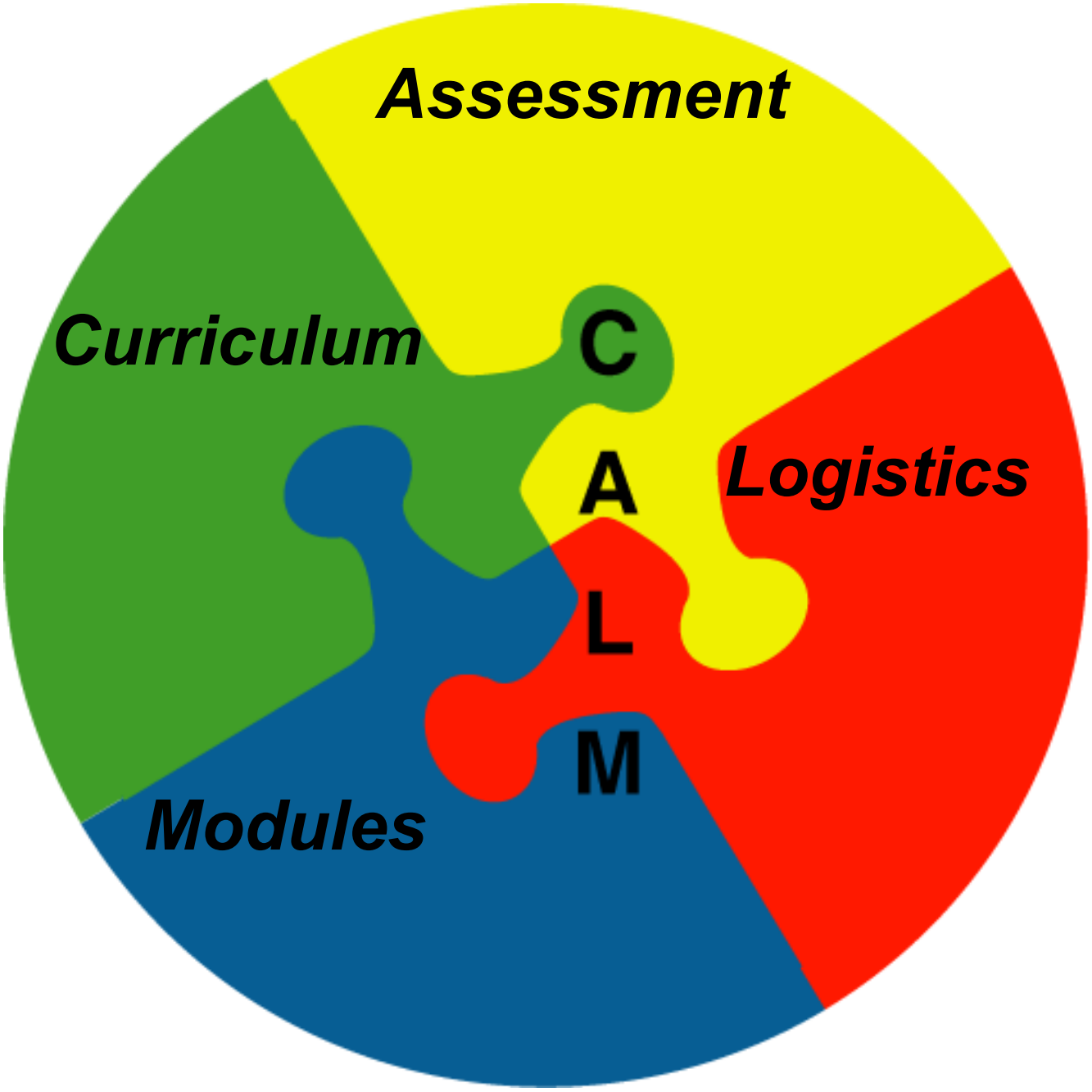
CPET
April 15, 2009

Curriculum

Assessment

Logistics

Modules


Assessment
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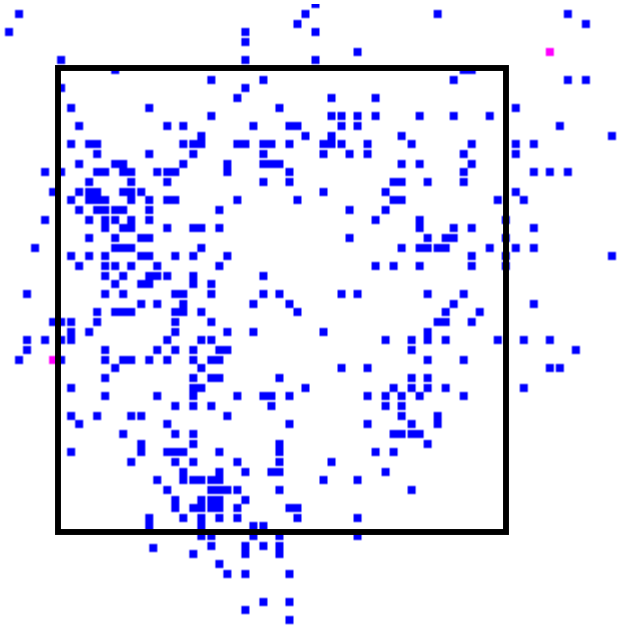
Modules

Work Products of CALM

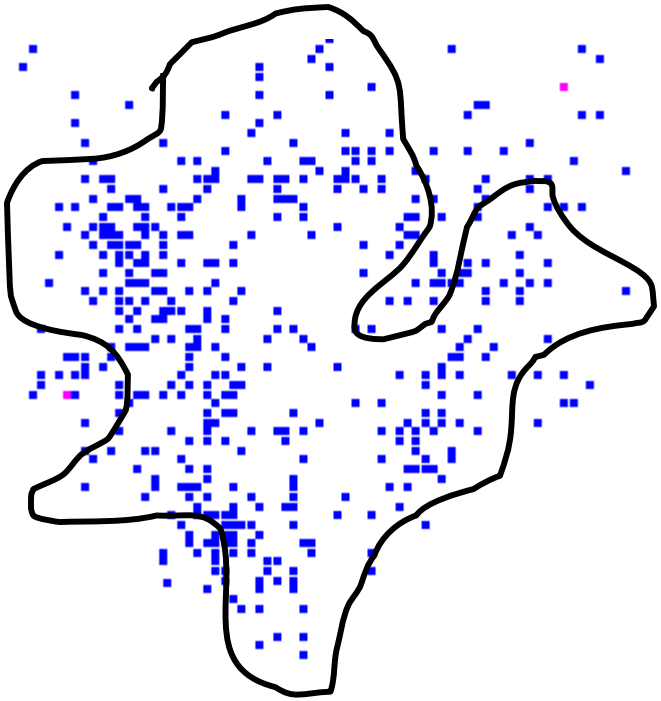
- Everything is done before classes start
- Course information documents written
  - Syllabus
  - Course Calendar
  - Policies: Rules, Regulations, Requirements
- Processes established
  - Communication
  - Distribute → Work → Submit → Grade → Return
  - Continuous Improvement

Curriculum: What to Teach

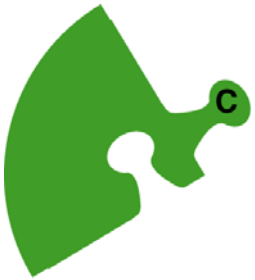
Traditional



Tailored



You should always tailor the course curriculum to best meet the needs & situations of students.



Curriculum: Tailoring

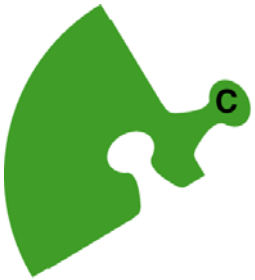
Factors that affect what you teach

- Pre/Post/Co-Requisites
- Other Typical Coursework
- Student Professional Exp.
- Student Career Goals
- Student Capabilities
- Student Interests

- Your Background
- Your Interests

- Accreditation
- Departmental Goals

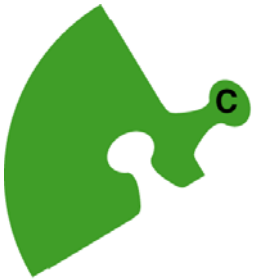
- Time



Curriculum: Accreditation

Examples of accreditation requirements

- Understanding of professional & ethical responsibility
- Knowledge of contemporary issues
- Ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- Ability to function on a multi-disciplinary team



Curriculum: Organizing

- In four columns list *everything* about
  - Concepts to Teach
  - Required Skills
  - Applications
  - Other (Ethics, Life Lessons, Sustainability,…)
- Filter/refine (tailor) the lists
- Order concepts to tell a linear story
- Assign skills to concepts
- Make connections with other classes

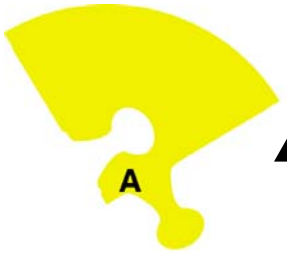
Curriculum: Elevator Pitch

Say what you teach in <15 seconds

Ch1a: The Chemical Bond

Ch1b: ???

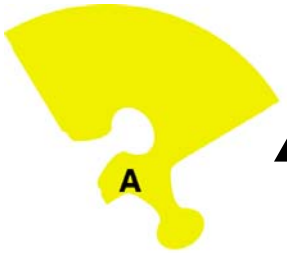
ChE103a: $\rho C_p \frac{\partial T}{\partial t} + \rho C_p \underline{u}.\underline{\nabla} T = k\nabla^2 T + S_H$



Assessment

You *always* need to assess three things:

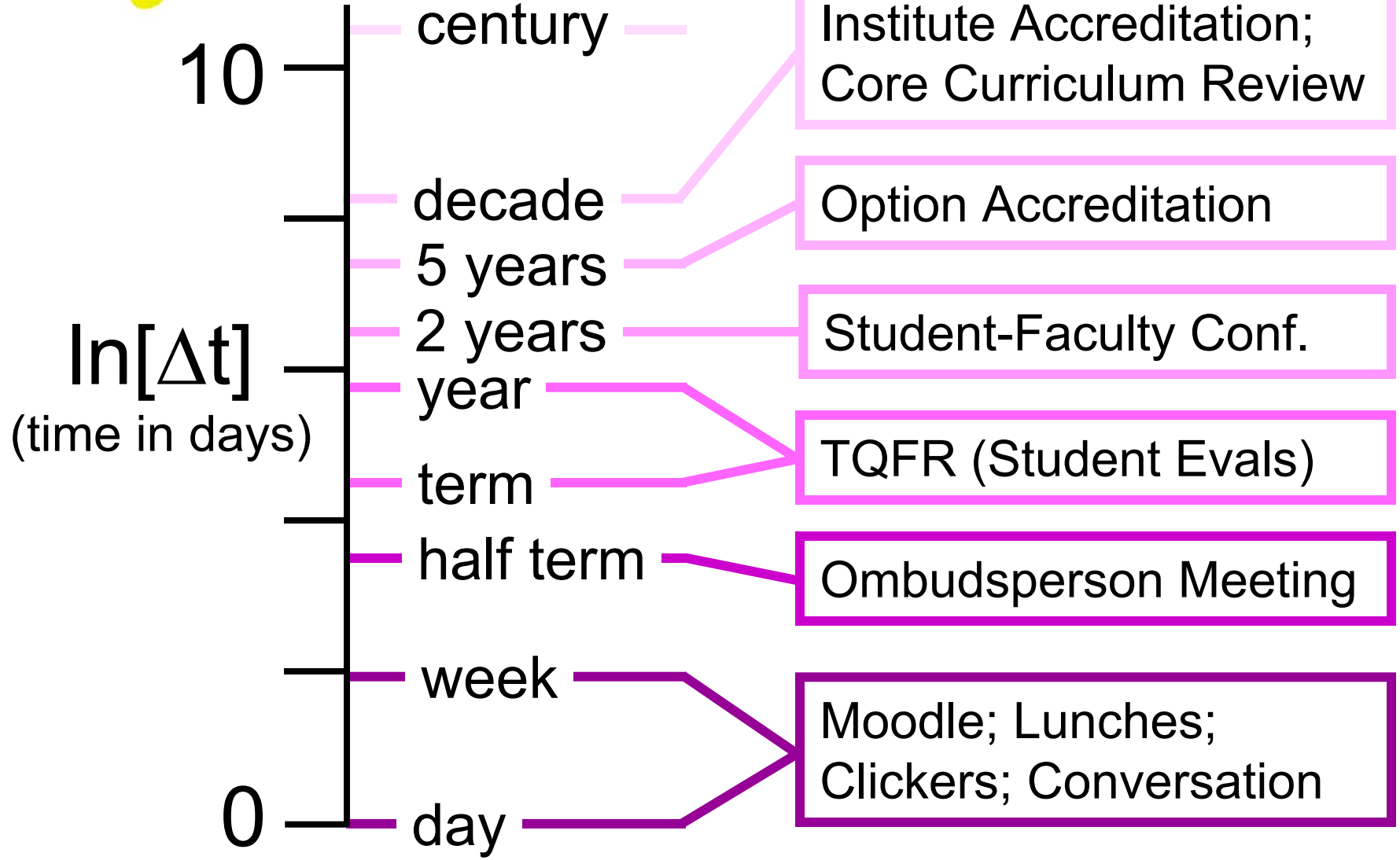
- Students
- The Course
- Yourself



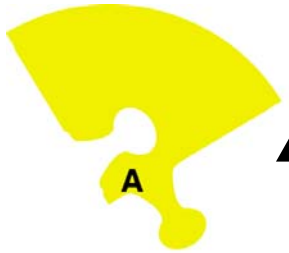
Assessing Students

- What methods are you going to use?
  - Active: Problem sets, quizzes, exams, memos, reports, presentations, lab notebooks, notes, …
  - Passive: Observational
- Let students know what to expect
  - Breakdown/distribution of overall grade
  - How many or how often
  - Requirements for different work types

Assessing the Course



Δt: time between assessment events



Assessing the Course II

"Thirty seconds.
Every player. Every day.

You want to connect."

Mike D'Antoni
Coach, New York Knicks

Quote source: Eric Neel,
"Gotham's Savior." ESPN.com

Logistics: The Basics

- Meeting times: Who, when, where, how often
  - Classes, labs
  - Recitations
  - Review sessions
  - TA office hours
  - Your office hours

Logistics: The Calendar

- Compile a course calendar that includes:
  - Institute holidays
  - Your travel days
  - Important dates
    - Add/drop day
    - Midterm reports and grades due
    - Exam periods
  - Course meeting times: re-evaluate if necessary

Logistics: The Basics II

- Student Work: When, where, how
  - Due dates & return dates (add due dates to calendar)
    - Return dates must allow students enough time to adjust
    - Check due dates for work in other courses if possible
  - Submitting & returning work
    - Physical location (drop box, mailbox, classroom, etc.)
    - Email (email alias)
    - Solution sets
  - Policies
    - Collaboration & allowable resources
    - Late work & penalties
    - Minimum effort clause

Logistics: Communication

- Communicate with entire class
  - Class/Lab time
  - Email/REGIS
  - Website
  - Resource calendar
  - Blog, Twitter (any technology with subscription)
- Communicate with all TAs
  - Email aliases

Logistics: Hidden Work

- TA meetings
  - Specify frequency and purpose
- Grading process
  - Identify who is writing solutions
  - Specify who is grading and turnaround time
  - Process for version control
  - Identify who is documenting student grades
  - Identify who is collecting sample documents

Logistics: Ch1ab Example

Course coordinator writes solutions
and distributes them to recitation TAs

↓

Recitation TAs work with solutions and suggest
changes based on student interactions

↓

Course coordinator updates
and distributes solutions to graders

↓

Distribute → Work → Submit → Grade → Return

↓

Graders suggest changes
based on how they graded work

↓

Course coordinator updates
and publishes solutions

Modules: Introduction

- A stand-alone set of materials that:
  - addresses a single concept;
  - can be easily related to the elevator pitch;
  - has a duration equal to, or shorter than, the time period between assignments;
  - finishes on time and allows students enough time to complete assignment.
- Add module titles to the course calendar and syllabus

Modules: Materials

Modules should include:

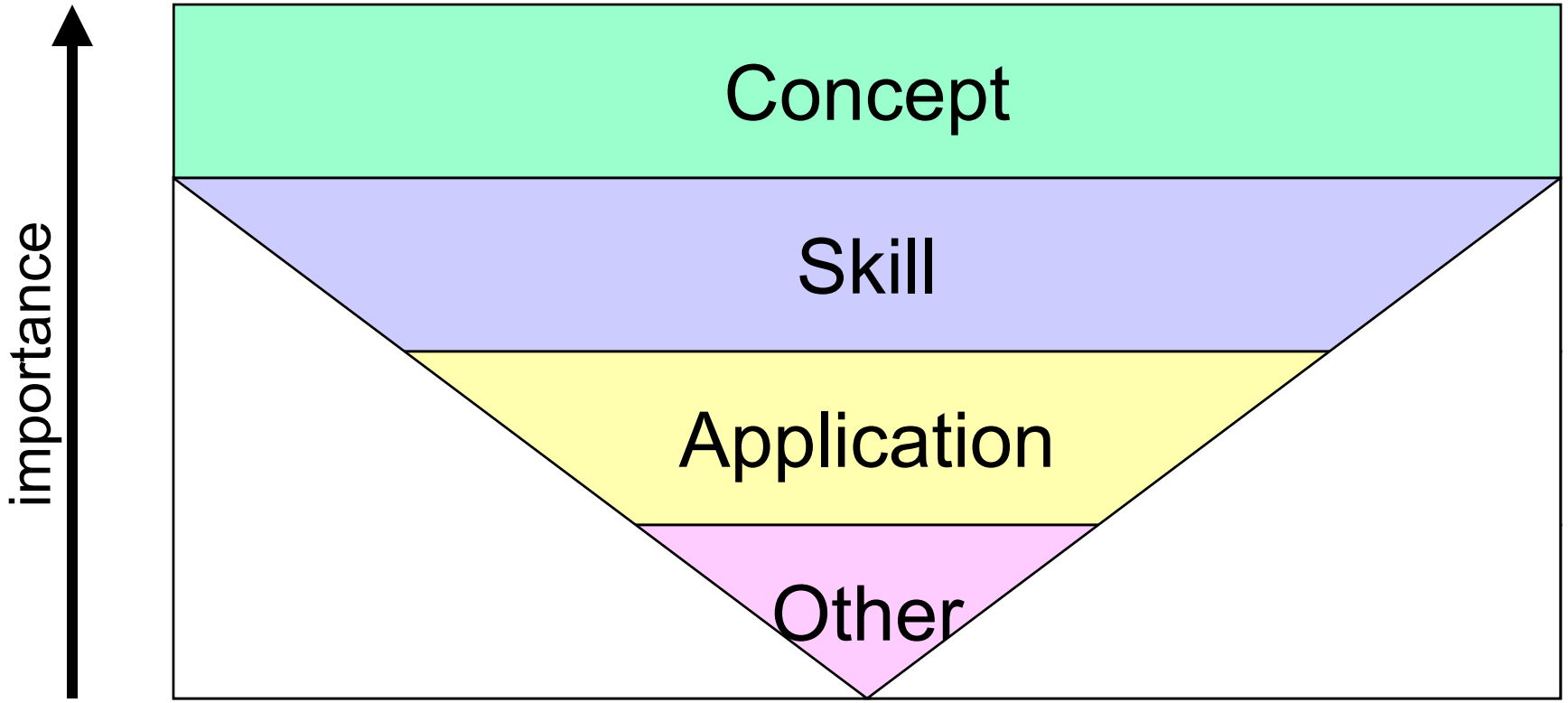
- Lectures
- Problem set (or other assignment)
- Exam/Quiz questions

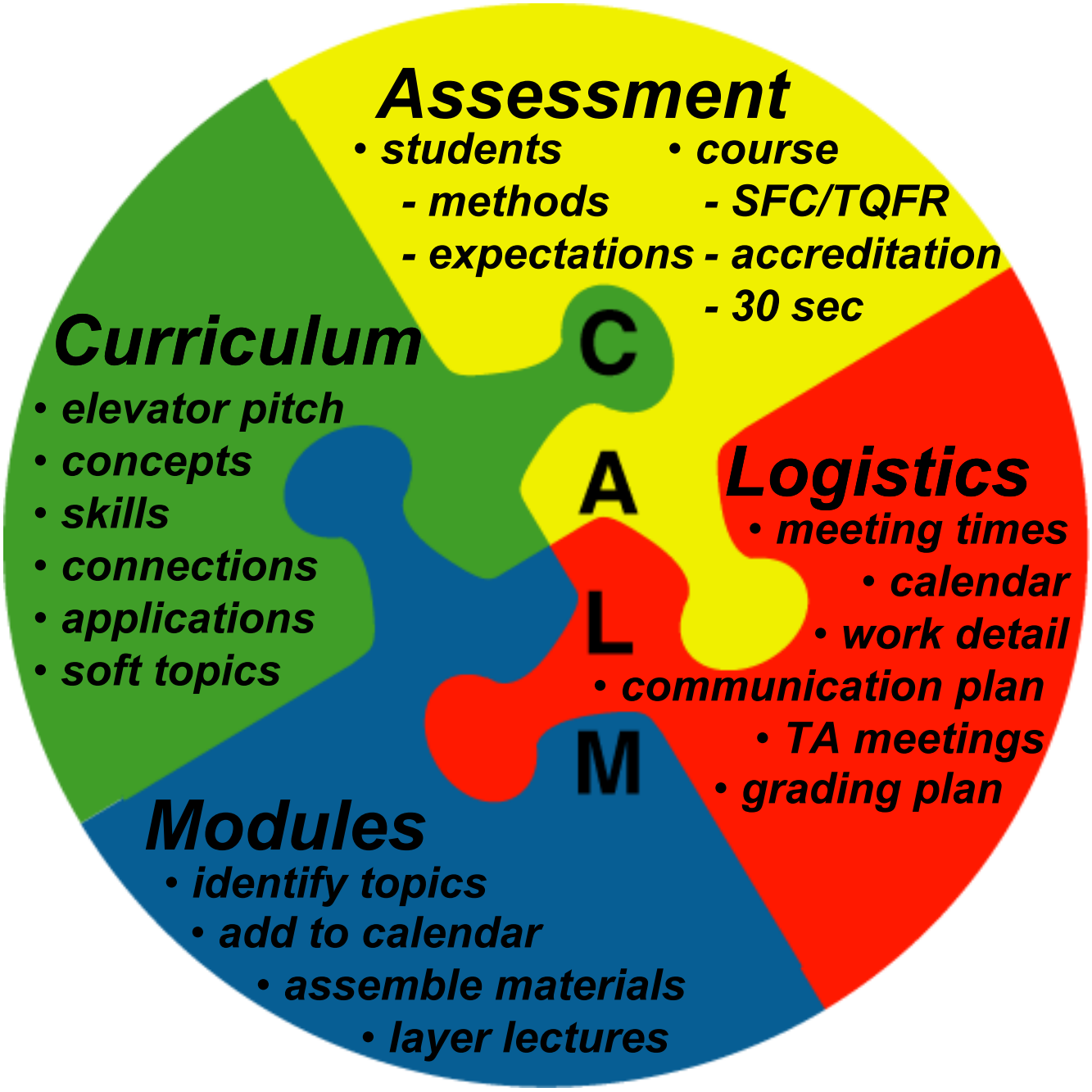
and cover essential parts of the curriculum

- Concept
- Skill(s)
- Application(s)
- Other topic(s)

Modules: Layered Lectures

How to make sure a module ends on time




Assessment
• students
- methods
- expectations
• course
- SFC/TQFR
- accreditation
- 30 sec
Curriculum
• elevator pitch
• concepts
• skills
• connections
• applications
• soft topics
C
A
L
M
Logistics
• meeting times
• calendar
• work detail
• communication plan
• TA meetings
• grading plan
Modules
• identify topics
• add to calendar
• assemble materials
• layer lectures

Work Products of CALM

- Everything is done before classes start
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  - ✔ – Syllabus
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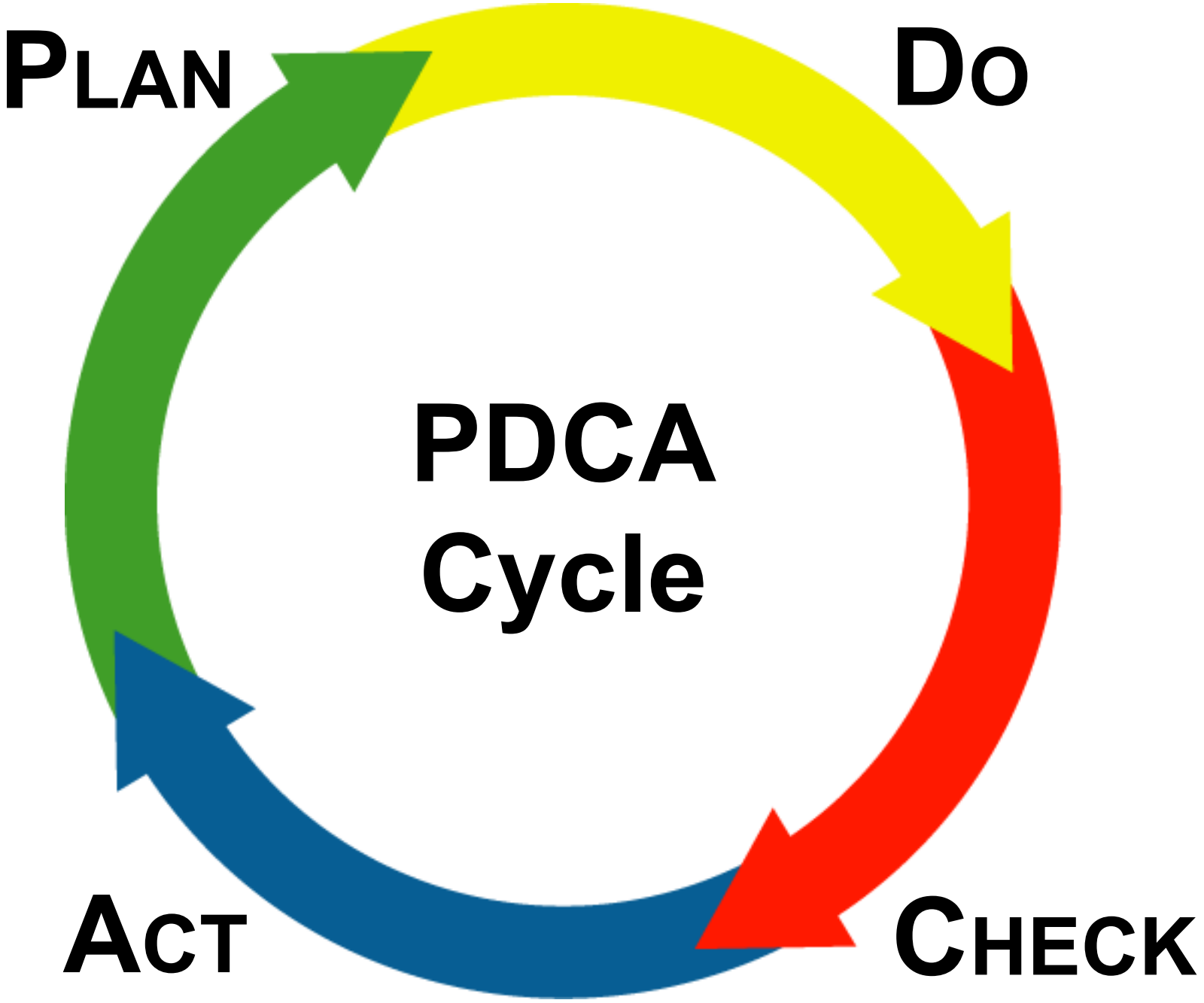
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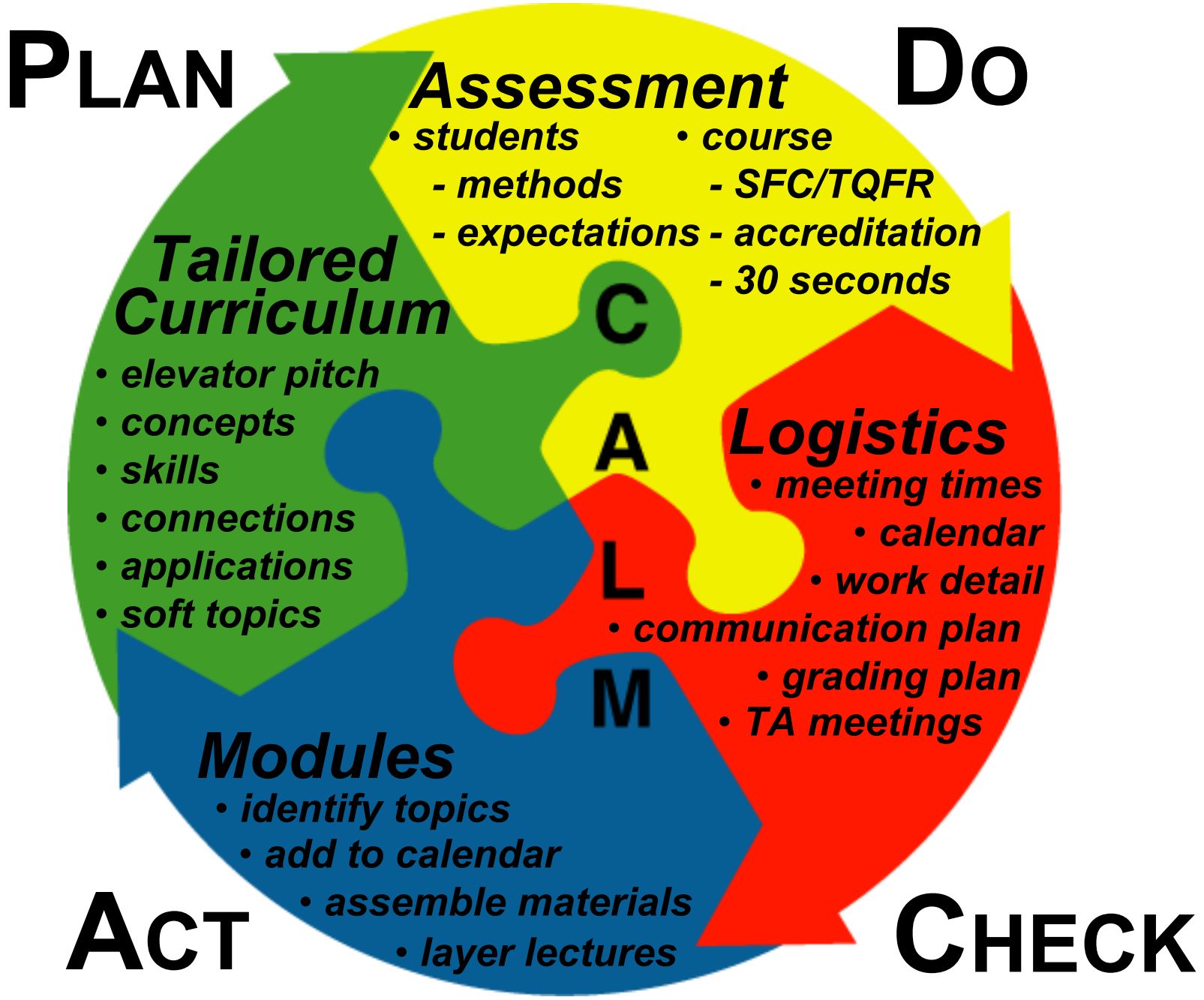
ACT
CHECK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