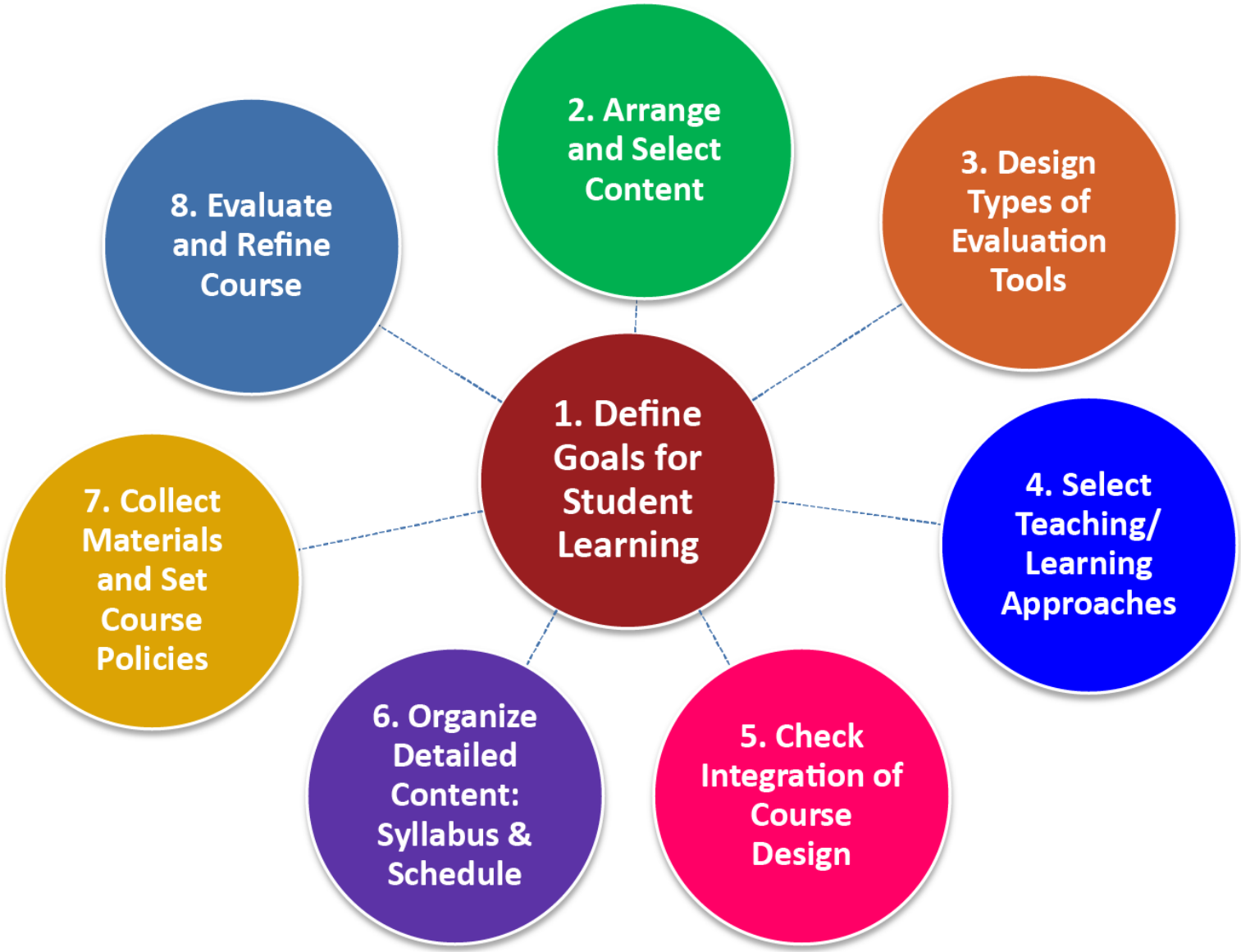
Course Preparation: Teaching Goals and Assessments

Information and figures derived from Workshop Materials prepared by Prof. Gina Frey, WU Teaching Center

Process of Course Design



Factors Affecting the Goals You Set for the Course

- Context of course
  - Number of students, level, major or non-major
  - Learning expectations from department, university, general profession
- Nature of the subject
  - Theoretical, practical, combination?
- Characteristic of participants
  - Students: Prior knowledge, expectations
  - Instructor: Knowledge of subject, teaching strengths and weaknesses

Defining Course Goals

- ***What should your students learn?***
  - Are there key topics that students need to master?
- ***What should students be able to do once the course is completed?***
  - Are there specific skills that students should obtain from this course?
- ***What do you want your students to remembers from your course in 5-10 years?***

Selecting and Arranging Course Content

- First, obtain previous course syllabi
  - Don’t reinvent the wheel unless you have no choice
- Consult textbooks or the literature
- Discuss topics with colleagues and mentors
- Refine topic list by considering course goals and participant characteristics
- Outline a rough course schedule, and then trim down the planned content
  - Don’t try to fit too much material in a course!
  - Determine an order of topics that is logical

Tools to Assess Student Learning

- For each main learning goal:
  - List types of evaluations to use
    - Homework, quizzes, papers, examinations, presentations, laboratory activities, class participation
    - Use in-class evaluations as well as outside
  - Determine the general characteristics of high-quality, acceptable, and poor levels of learning
    - Taxonomy of educational objectives: Cognitive and knowledge aspects of learning

Cognitive Dimensions of Student Learning

Category	Representative Skill (*Indicator Verbs*)
Remember	**Encode and retrieve** relevant knowledge from long-term memory (*define, identify, recall, recognize*)
Understand	**Construct meaning** from a variety of sources, including oral, written, and graphic media (*exemplify, classify, summarize, infer, compare, and explain*)
Apply	**Use or implement** a procedure in a given situation; Apply theory or procedure to a new problem or example (*execute, implement, apply*)
Analyze	**Distinguish** constituent parts of a given subject and **determine** how the parts relate to one another and to an overall structure or purpose (*interpret, differentiate, organize, attribute*)
Evaluate	**Make judgments** based on criteria, standards, and knowledge of material (*check, critique, judge*)
Create	**Combine elements** to form a coherent or functional whole; **Reorganize elements** into a novel pattern or structure (*construct, generate, produce, design, synthesize*)

Knowledge Dimensions of Student Learning

Category	Representative Type
Factual	• Terminology • Specific, verifiable details and elements, including knowledge of reliable sources of information
Conceptual	• Classification and categories • Principles and generalizations • Theories, models, and structures
Procedural	• Skills, techniques, and methods • Criteria for determining when to use appropriate procedure
Metacognitive	• Strategic knowledge (knowledge of effective and less effective approaches to learning) • Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge (knowledge of time required to complete tasks) • Self-knowledge (awareness of one's own strength and weaknesses as a learner; knowing what you don't know)

Assessments Need to Provide Students with Feedback

- Determine how feedback is going to be given so that students:
  - Know whether they are learning at the appropriate level and pace
  - Improve if they choose to do so
- Develop a logical sequence of assessments
  - Provide assignments that help students practice skills that they will use on exams
  - Give shorter writing assignments to build up to longer papers
  - Break a larger assignment into pieces: For example, a project proposal, then bibliography, then presentation

Select Teaching and Learning Activities

- Select a teaching approach appropriate for students and class size
- Choose activities to help students meet goals
- Use a variety of activities
  - Lectures, laboratory sections, discussion
  - Active learning
  - Individual and group activities

More on these next week!!!

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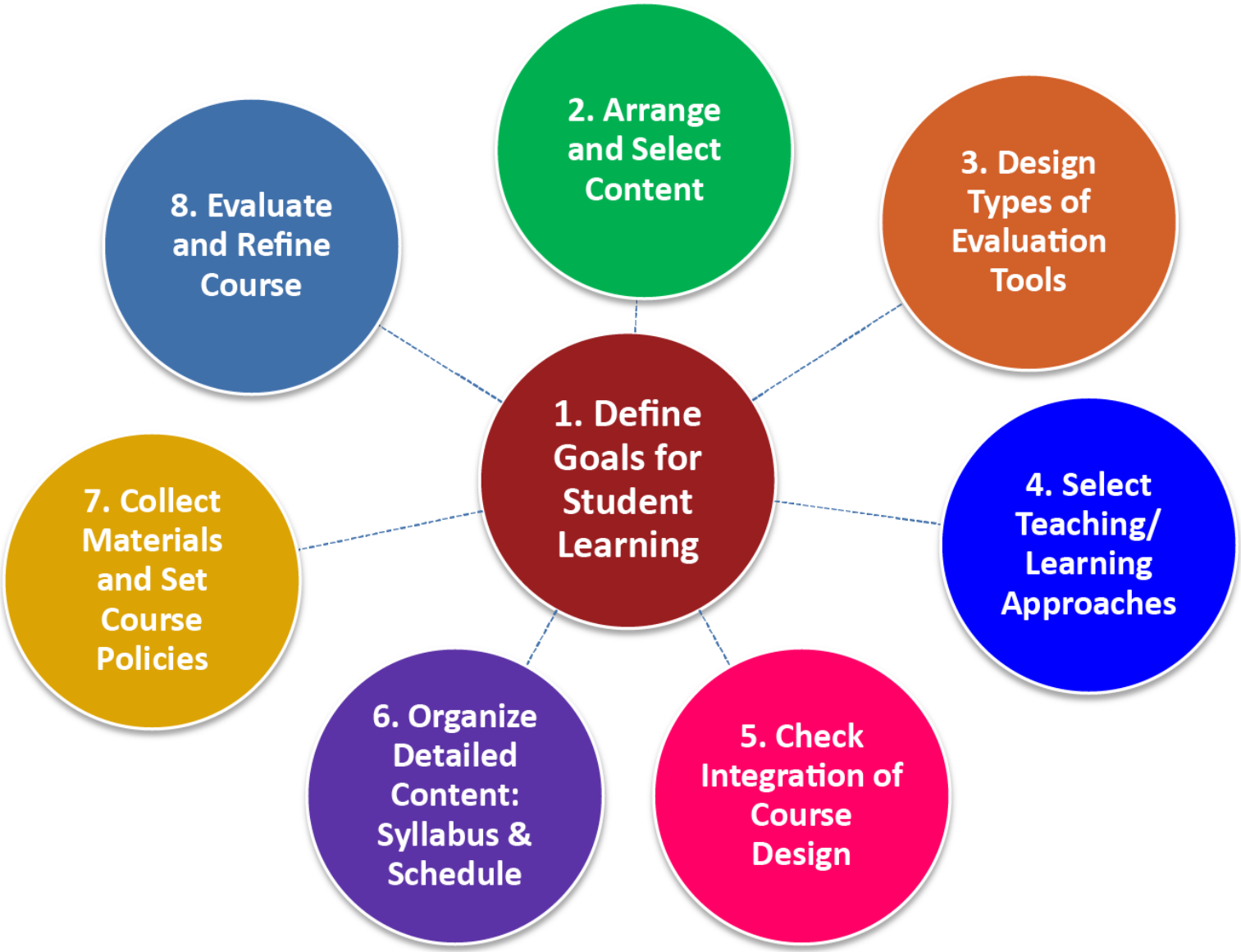

Evaluate and Refine Course

- After each class, take brief notes on how the lecture went, what you need to improve, etc.
  - What worked well and what worked poorly
- At end of semester, review these notes, student evaluations, student performance on assessments, and evaluations from faculty or colleagues
  - ***Did your students achieve the learning goals?***
- Make a plan for course revisions

Resources

- *McKeachie's Teaching Tips*, 14th edition, M.D. Svinicki and W.J. McKeachi, 2013, Cengage Learning
- *Teaching at Its Best: A Research-Based Resource for College Instructors*, 3rd edition, L.B. Nilson, 2010, Jossey-Bass
- On the Cutting Edge: Professional Development Program for Geoscience Faculty
  - Workshops run by NAGT

    http://serc.carleton.edu/NAGTWorkshops