Office of Distance Learning (not just about distance learning—experts in instructional design & assessment!): https://distance.fsu.edu/instructors

There's tons of helpful information and resources on ODL's site, but here a couple that I think are particular helpful/relevant:

1. https://distance.fsu.edu/instructors/creating-learning-outcomes (assistance with writing learning objectives/outcomes)
    a. Regarding outcomes see also the attached handout on objectives/verbs and also this website: http://thesecondprinciple.com/teaching-essentials/beyond-bloom-cognitive-taxonomy-revised/

2. https://distance.fsu.edu/instructors/designing-online-learning (for more on the Quality Matters rubric for evaluating quality of teaching—ODL does these reviews of all online courses, see the attachment on QM)

3. https://distance.fsu.edu/instructors/team-based-learning (for more on team based learning, see also https://cft.vanderbilt.edu/guides-sub-pages/team-based-learning/)

4. https://distance.fsu.edu/summer-workshop-series (for workshops on campus that may be helpful with developing courses)

As for measure, the best tool out there is a library guide developed by Gloria Colvin who heads the Scholars Commons at FSU: http://guides.lib.fsu.edu/c.php?g=352260&p=2380372

- It contains links to many sources of measures that have already been developed and in many cases validated
- One of the best in Psycnet (**http://psycnet.apa.org/index.cfm?fa=search.defaultSearchForm**)
- Evidence about the survey is presented and sometimes the full measure itself. If not provided, email the authors for a copy of the survey
- I searched Psycnet and found some potentially relevant measures of confidence and intention (see attached Word doc)

Searched Psycnet for CONFIDENCE:

Goal Attainability Measure

By Brandsdtatter, Veronika; Herrmann, Marcel
2016. doi: http://dx.doi.org/10.1037/t49402-000
Construct: Goal Attainability
The Goal Attainability Measure (Brandstätter & Herrmann, 2016) was developed for a study examining goal disengagement in emerging adulthood. From a sample of freshman students of the University of Zürich in Switzerland, data were obtained successively at 12 measurement points (Time 1-Time 12) over the time period of one and a half years and four semesters. Participants were first provided with a description of the goal concept (Brunstein, 1993; Emmons, 1986) and asked to list two personally important goals they were actively striving for and intended to pursue in the near future in addition to their studies. They then rated goal attainability with 3 newly-developed items: "I am confident of my success in pursuing this goal," "Pursuing this goal seems difficult to me" [reverse coded], and "I am convinced to possess the required abilities to successfully achieve this goal." Responses were rated from 1 (no agreement) to 5 (very much agreement). Internal consistency, due to the modest number of items, was satisfactory (personal goal 1: alpha at Time 1 = 0.66; personal goal 2: alpha at Time 1 = 0.79). (PsycTESTS Database Record (c) 2016 APA, all rights reserved)

Engineering Task Self-efficacy Measure

By Fouad, Nadya A.; Singh, Romila; Cappaert, Kevin; Chang, Wen-hsin; Wan, Min
2016. doi: http://dx.doi.org/10.1037/t47998-000
Construct: Task Self Efficacy
The Engineering Task Self-efficacy Measure (Fouad et al., 2016) was developed from skills identified as common across different engineering fields. Women engineers completed the twelve item Engineering Task self-efficacy Measure. Items assessed confidence with completing engineering tasks that were developed from tasks identified as typical in engineering occupations from the O*Net set of tasks common across the major engineering occupations (DOL, 2008). These included researching, designing, answering technical questions, operating software to execute designs, communicating with colleagues, supervisors and customers, troubleshooting problems, and documenting procedures. One item was dropped due to poor factor loading. Participants rated their level of confidence on engineering tasks (e.g., “I am confident in researching the requirements or specifications for a new product or project.”). (PsycTESTS Database Record (c) 2016 APA, all rights reserved)

Searched Psycnet for Intention to Graduate:

GraduateEngineering Student Experiences in Research Groups Survey

By Crede, Erin; Borrego, Maura
2013. doi: http://dx.doi.org/10.1037/t21435-000
Construct: Student Experiences
The Graduate Engineering Student Experiences in Research Groups Survey (Crede & Borrego, 2013) was developed to assess the experiences of engineering graduate students in research groups. Themes for this survey were generated from relevant ethnographic observations and interviews. The constructs were operationalized by using field notes, interview transcripts, and analytic memos to create Likert-type scale items. Additional questions were added to each survey construct based on a review of the literature. The final survey contains 63 items, divided into 5 sections. The first section is used to display the privacy information and document informed consent to participate in the survey. Section 2 contains 42 Likert-type questions, which address 7 constructs (Feeling valued, Development, Organization, International diversity, Climate, Individual preferences, Expectations) and 2 dependent variables (students’ intention to complete their graduate degree and satisfaction with their experience in their research group). Sections 3 and 4 contain group and individual demographic questions, respectively. Section 5 contains 2 open-ended survey questions. Cronbach's alpha coefficients for the 7 constructs ranged from .63-.86. The survey takes between 10 and 20 minutes to complete. (PsycTESTS Database Record (c) 2015 APA, all rights reserved)

Any Field: theory of planned behavior *AND* **Index Term**: Intention *AND* **Test Construct**: Theory of Planned Behavior

Theory of Planned BehaviorQuestionnaire

By Davis, Larry E.; Ajzen, Icek; Saunders, Jeanne; Williams, Trina
2002. doi: http://dx.doi.org/10.1037/t15482-000
Construct: Student Intentions, Theory of Planned Behavior
Constructed in the course of a study investigating high school completion among African Americans, the Theory of Planned Behavior Questionnaire (Davis et al., 2002) was developed to assess intention to stay in school, attitude toward this behavior, subjective norm, and perceived control over staying in school. Five items assessed intentions to complete the present school year, rated on 7-point agree–disagree scales (alpha = .77; coefficient of stability = .54). Attitudes were assessed by means of a series of 8 evaluative semantic differential scales (alpha = .82; coefficient of stability = .51). Three items were used to assess subjective norms with respect to completing the present school year, using 7-point unlikely–likely scales (alpha = .71; coefficient of stability = .22). Four items assessed perceived control over completing the present school year using disagree–agree and easy– difficult scales (alpha = .54; coefficient of stability = .49). In a 4-factor solution (using principal axis factor analysis with orthogonal rotation), all items designed to assess a given construct loaded highly on the same factor and had relatively low loadings on the remaining 3 factors. (PsycTESTS Database Record (c) 2014 APA, all rights reserved)

ALSO SEE:

Development and Large-Scale Validation of an Instrument to Assess Arabic-Speaking Students' Attitudes Toward Science:
http://www.tandfonline.com/doi/pdf/10.1080/09500693.2015.1098789

College persistence:

http://muse.jhu.edu/article/270621/figure/tab01

FLORIDA STATE UNIVERSITY
OFFICE OF DISTANCE LEARNING

QUALITY MATTERS PROGRAM QM

Quality Matters™ Rubric Standards

Fifth Edition, 2014, with Assigned Point Values

The Office of Distance Learning has adopted the Quality Matters rubric as a means of assessing the design quality of FSU online courses. The rubric standards are backed by national research in online learning. Feel free to use the rubric as checklist as you develop your course. At the end of course development, ODL will use the rubric to review the course and provide feedback to instructors. The rubric serves as a diagnostic tool for engagement in continuous quality improvement.

Ⓢ = Syllabus Ⓣ = Course Template Ⓥ = Course Intro Video

1. Course Overview and Introduction

			pts
☐	1.1	Instructions make clear how to get started and where to find various course components. Ⓣ Ⓥ	3
☐	1.2	Learners are introduced to the purpose and structure of the course. Ⓢ Ⓣ Ⓥ	3
☐	1.3	Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication are stated clearly. Ⓢ	2
☐	1.4	Course and/or institutional policies with which the learner is expected to comply are clearly stated, or a link to current policies is provided. Ⓢ	2
☐	1.5	Minimum technology requirements are clearly stated and instructions for use provided. Ⓣ Ⓥ	2
☐	1.6	Prerequisite knowledge in the discipline and/or any required competencies are clearly stated. Ⓢ	1
☐	1.7	Minimum technical skills expected of the learner are clearly stated. Ⓢ	1
☐	1.8	The self-introduction by the instructor is appropriate and available online. Ⓣ Ⓥ	1
☐	1.9	Learners are asked to introduce themselves to the class. Ⓣ	1

2. Learning Objectives (Competencies)

☐	2.1	The course learning objectives, or course/program competencies, describe outcomes that are measurable. Ⓢ	3
☐	2.2	The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level Ⓢ	3
☐	2.3	All learning objectives or competencies are stated clearly and written from the learner's perspective. Ⓢ	3
☐	2.4	The relationship between learning objectives or competencies and course activities is clearly stated. Ⓢ Ⓥ	3
☐	2.5	The learning objectives are suited the level of the course.	3

3. Assessment and Measurement

☐	3.1	The assessments measure the stated learning objectives or competencies.	3
☐	3.2	The course grading policy is stated clearly. Ⓢ	3
☐	3.3	Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course grading policy. Ⓢ	3
☐	3.4	The assessment instruments selected are sequenced, varied, and suited to the learner's work being assessed. Ⓢ	2
☐	3.5	The course provides learners with multiple opportunities to track their learning progress.	2

4. Instructional Materials

☐	4.1	The instructional materials contribute to the achievement of the stated course and module/unit learning objectives or competencies.	3
☐	4.2	Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained. Ⓔ Ⓥ	3
☐	4.3	All instructional materials used in the course are appropriately cited. Ⓥ	2
☐	4.4	The instructional materials are current.	2
☐	4.5	A variety of instructional materials is used in the course.	2
☐	4.6	The distinction between required and optional materials is clearly explained. Ⓢ Ⓥ	1

5. Learner Activities and Learner Interaction

☐	5.1	The learning activities promote the achievement of the stated learning objectives or competencies.	3
☐	5.2	Learning activities provide opportunities for interaction that support active learning.	3
☐	5.3	The instructor's plan for classroom response time and feedback on assignments is clearly stated. Ⓢ	3
☐	5.4	The requirements for student interaction are clearly stated. Ⓢ Ⓥ	2

6. Course Technology

☐	6.1	The tools used in the course support the learning objectives and competencies.	3
☐	6.2	Course tools promote learner engagement and active learning.	3
☐	6.3	Technologies required in the course are readily obtainable. Ⓘ	2
☐	6.4	The course technologies are current. Ⓘ	1
☐	6.5	Links are provided to privacy policies for all external tools required in the course. Ⓢ	1

7. Learner Support

☐	7.1	The course instructions articulate or link to a clear description of the technical support offered and how to obtain it. Ⓢ Ⓥ	3
☐	7.2	Course instructions articulate or link to the institution's accessibility policies and services. Ⓢ	3
☐	7.3	Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them. Ⓢ Ⓘ	2
☐	7.4	Course instructions articulate or link to an explanation of how the institution's student services and resources can help learners succeed and how learners can obtain them. Ⓘ	1

8. Accessibility and Usability

☐	8.1	Course navigation facilitates ease of use. Ⓢ Ⓔ	3
☐	8.2	Information is provided about the accessibility of all technologies required in the course. Ⓢ	3
☐	8.3	The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2
☐	8.4	The course design facilitates readability. Ⓘ	2
☐	8.5	Course multimedia facilitate ease of use.	2

A Model of Learning Objectives

based on

A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives

Among other modifications, Anderson and Krathwohl's (2001) revision of the original Bloom's taxonomy (Bloom & Krathwohl, 1956) redefines the cognitive domain as the intersection of the Cognitive Process Dimension and the Knowledge Dimension. This document offers a three-dimensional representation of the revised taxonomy of the cognitive domain.

Although the Cognitive Process and Knowledge dimensions are represented as hierarchical steps, the distinctions between categories are not always clear-cut. For example, all procedural knowledge is not necessarily more abstract than all conceptual knowledge; and an objective that involves analyzing or evaluating may require thinking skills that are no less complex than one that involves creating. It is generally understood, nonetheless, that lower order thinking skills are subsumed by, and provide the foundation for higher order thinking skills.

The Knowledge Dimension classifies four types of knowledge that learners may be expected to acquire or construct—ranging from concrete to abstract (Table 1).

Table 1. The Knowledge Dimension – major types and subtypes

concrete knowledge → abstract knowledge			
factual	**conceptual**	**procedural**	**metacognitive***
knowledge of terminology knowledge of specific details and elements	knowledge of classifications and categories knowledge of principles and generalizations knowledge of theories, models, and structures	knowledge of subject-specific skills and algorithms knowledge of subject-specific techniques and methods knowledge of criteria for determining when to use appropriate procedures	strategic knowledge knowledge about cognitive tasks, including appropriate contextual and conditional knowledge self-knowledge

(Table 1 adapted from Anderson and Krathwohl, 2001, p. 46.)

*Metacognitive knowledge is a special case. In this model, "metacognitive knowledge is knowledge of [one's own] cognition and about oneself in relation to various subject matters . . . " (Anderson and Krathwohl, 2001, p. 44).

IOWA STATE UNIVERSITY
Center for Excellence in Learning and Teaching

This taxonomy provides a framework for determining and clarifying learning ***objectives***.
Learning ***activities*** often involve both lower order and higher order thinking skills as well as a mix of concrete and abstract knowledge.

The Cognitive Process Dimension represents a continuum of increasing cognitive complexity—from lower order thinking skills to higher order thinking skills. Anderson and Krathwohl (2001) identify nineteen specific cognitive processes that further clarify the scope of the six categories (Table 2).

Table 2. The Cognitive Processes dimension — categories & cognitive processes and alternative names

lower order thinking skills → higher order thinking skills					
remember	**understand**	**apply**	**analyze**	**evaluate**	**create**
recognizing • identifying **recalling** • retrieving	**interpreting** • clarifying • paraphrasing • representing • translating **exemplifying** • illustrating • instantiating **classifying** • categorizing • subsuming **summarizing** • abstracting • generalizing **inferring** • concluding • extrapolating • interpolating • predicting **comparing** • contrasting • mapping • matching **explaining** • constructing models	**executing** • carrying out **implementing** • using	**differentiating** • discriminating • distinguishing • focusing • selecting **organizing** • finding coherence • integrating • outlining • parsing • structuring **attributing** • deconstructing	**checking** • coordinating • detecting • monitoring • testing **critiquing** • judging	**generating** • hypothesizing **planning** • designing **producing** • constructing

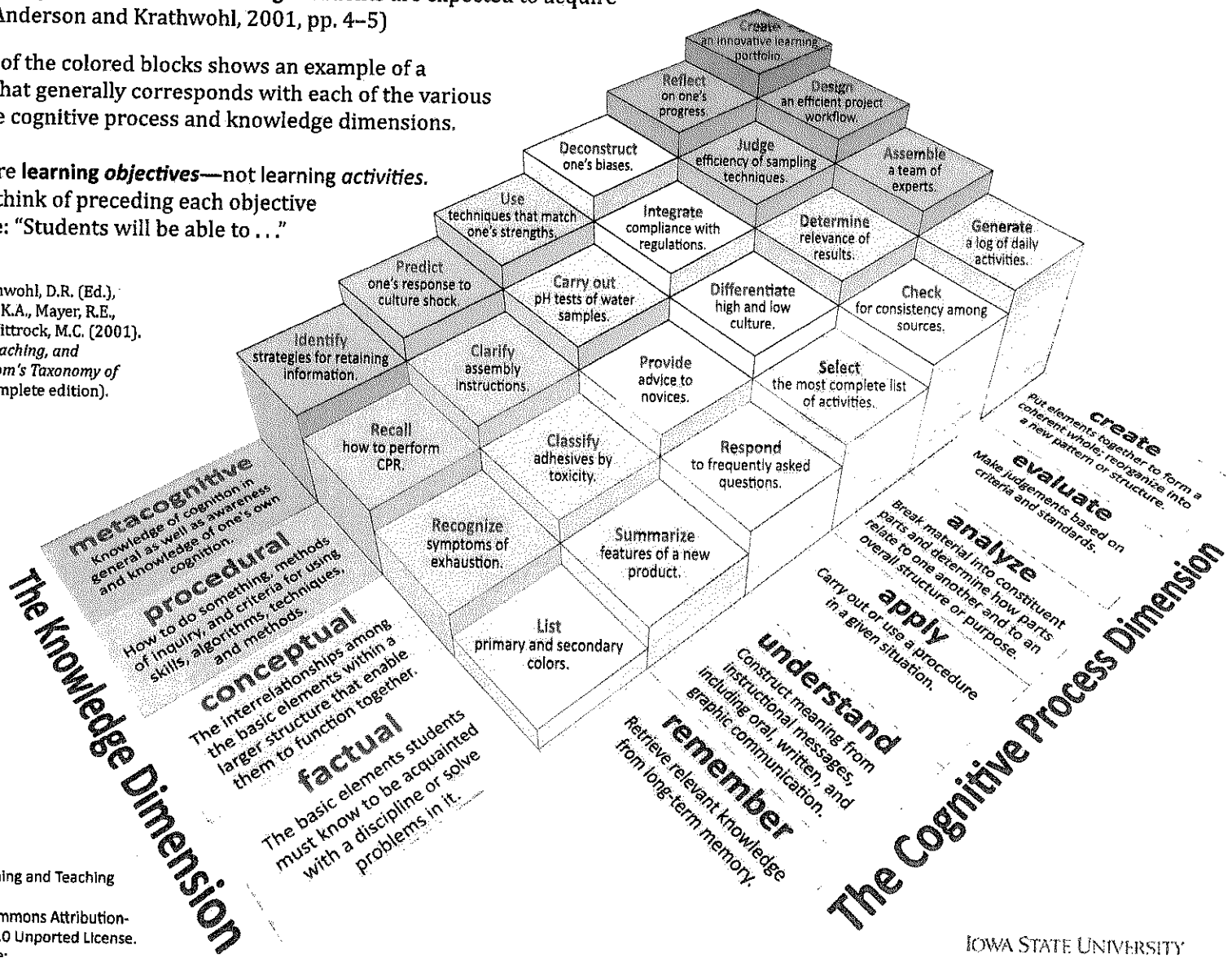
(Table 2 adapted from Anderson and Krathwohl, 2001, pp. 67–68.)

A statement of a **learning objective** contains a **verb** (an action) and an **object** (usually a noun).

- The **verb** generally refers to [actions associated with] the intended **cognitive process**.
- The **object** generally describes the **knowledge** students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are **learning *objectives***—not learning *activities*. It may be useful to think of preceding each objective with something like: "Students will be able to . . ."



*Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.

Model created by: Rex Heer
Iowa State University
Center for Excellence in Learning and Teaching
Updated January, 2012

For additional resources, see:
www.celt.iastate.edu/teaching/RevisedBlooms1.html

IOWA STATE UNIVERSITY
Center for Excellence in Learning and Teaching