

## Chapter 2 — Determining Learning Objectives

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In this chapter we help you identify the goals and objectives you want students to reach by the end of the course, and provide guidelines for using your objectives when designing your course.

- [Instructional Goals and Learning Objectives](#)
- [Course Design Guidelines](#)
- [Resources and Related Chapters](#)

### **Instructional Goals and Learning Objectives**

#### **Importance of Goals and Objectives**

Clearly defined goals and objectives form the foundation for selecting appropriate content, learning activities, and assessment measures. If objectives of the course are not clearly understood by both instructor and students, if your learning activities do not relate to the objectives and the content that you think is important, then your methods of assessment, which are supposed to indicate to both learner and instructor how effective the learning and teaching process has been, will be at best misleading, and, at worst, irrelevant, unfair, or useless.

#### **Step 1 — Establish a Course Goal.**

Stated simply, a course goal is a global statement about the projected outcomes of the course. Generally, a course goal is a broad statement that will include many subordinate skills.



#### **Examples**

- *Nursing Concepts course* – With an emphasis on health, family, interdisciplinary communication, teaching/learning, and crisis intervention, students will be able to apply introductory critical concepts and nursing strategies.
- *Family and Social Change course* – Using a basic sociological approach, students will be able to observe, describe, and discuss conditions, issues, and problems of familial organizations within the context of changing institutional structures of modern society.
- *Physical Geography course* – Students will be able to describe how global variations in climate, landforms, and natural habitat affect changes and life on earth.

#### **Step 2 — Arrange Content in Topical Units.**

The course goals listed above do not detail actual student performances or how they will be measured. Thus, your next step is to break down the goals and determine specific learning

objectives that students will be able to achieve. However, before writing specific objectives it is often helpful to break the course content down into smaller “topical” units.

In a course called “Relational Databases,” the course goal would be: The student will be able to design, develop, and evaluate a database application to facilitate worker performance on the job.

### **Examples**

Topical units and time frames in this course would be:

Unit 1 – Introduction to database applications, relational databases, and Microsoft Access	2 weeks
Unit 2 – Data tables, data types, and relationships Exam 1	2 weeks
Unit 3 – Queries Exam 2	4 weeks
Unit 4 – Forms and reports Exam 3	4 weeks
Unit 5 – User navigation and security	1 week
Unit 6 – Internet issues Final project due	1 week

By breaking the course down into units and associating a time frame with the units, it becomes obvious which units are going to require the most instructional emphasis, and which will require the most testing.

### **Step 3 — Define Learning Outcomes**

The next step is to define learning outcomes for each of the units, which requires writing subordinate goals for each of the units. For the following example, we have used “Unit 3 – Queries” from the above example.

### **Example**

Unit 3 – Queries (4 weeks – 3 hours of instruction per week)
Introduction (3 hours)
Kinds and purposes of queries
Dynasets
The query editor – creating and storing a query
View queries
Single table view queries
Sorting data
Filtering data
Selection queries
Simple selection query

- Related table queries
  - Adding tables and fields
  - AND, OR, NOT criteria
- Action queries (4 hours)
  - Calculated fields in a query
  - Delete queries
  - Make table queries
- Rules for adding data to a table from within a query (1 hour)
- Parameter queries (3 hours)
  - Parameters / Filters
  - Passing parameters
- SQL – The language of queries (1 hour)

Since this is an example of an introductory course, only one hour is being given to the SQL topic in this course. At a higher level, the SQL topic should be a course in itself.

#### Step 4 — Write Learning Objectives

The next step is to write learning objectives for each of these subordinate topics. As an example we have used the Unit 3 topic “Calculated fields in a query.”



#### Example

*Topic:* Calculated fields in a query

*Objective:* Given a problem and appropriate data tables, the student will be able to demonstrate the construction of a calculated field in a query to multiply data from a field in one table with data from a field in another table.

#### What is a Learning Objective?

- A learning objective answers the question: “What is it that your students should be able to do at the end of the hour that they could not do before?”
- A learning objective makes clear the intended learning outcome or product of instruction, rather than what form the instruction will take.
- Learning objectives focus on **student performance**. Action verbs that are specific, such as *list*, *describe*, *report*, *compare*, *demonstrate*, and *analyze*, should state the behaviors students will be expected to perform.



#### Examples

- Given geological ages of rock formations, the student will be able to categorize the relative ages (youngest to oldest) of those formations according to the geologic time scale.
- Students will be able to describe a possible correlational study in their area in which a specified regression model would be

used.

- The student will be able to compare Piaget's and Vygotsky's theories about cognitive development.
- The student will be able to generate an example of the negation stage of the Hegelian Dialectic.

## Reasons for Developing Objectives

Objectives help reduce complaints because:

- Students can see how the material is related to their educational goals or to any other goals they can recognize as being important.
- Your tests will correspond to the stated learning objectives. (Once you have written your learning objectives, you have defined your assessment materials.)
- Students know what to study and what they are expected to be able to do after the instruction.
- Your course is organized. (With objectives, the topics fit together and have direction.)

In short, learning objectives communicate what the instructor is trying to teach; what the students are to be expected to be able to do; how their achievement will be measured; and what will be accepted as evidence that they have achieved the goals.

## Types of Learning Outcomes

Most of us recognize that there are many different types of objectives. Some are easy, only requiring the simple recall of a definition. Others are more complex, requiring problem solving or evaluation.

One popular categorization scheme for types of objectives is Benjamin Bloom's (1956) *Taxonomy of Objectives for the Cognitive Domain*, which includes the following levels:

- **Knowledge** – Primarily concerned with students' ability to memorize or recall certain specific facts.
- **Comprehension** – Usually involves the ability to interpret, paraphrase, and extrapolate, thus demonstrating students' basic understanding of ideas that they did not originate.
- **Application** – Includes activities in which the student applies concepts and principles to new and/or practical situations.
- **Analysis** – Concerned with breaking down a piece of information into its constituent parts, differentiating and

denoting.

- **Synthesis** – Involves the blending of elements and parts to form a whole. Students should be able to create a structural pattern that was not previously present.
- **Evaluation** – At this highest level, students might judge the value of a work, the logical consistency of written data, or the adequacy of someone else’s conclusions.

### Higher-level vs. Lower-level Objectives

Research indicates that although most faculty think they teach toward higher-level objectives, in reality most instruction, even at the university level, favors only lower-level learning. The benefit of Bloom’s taxonomy is that it allows us to focus our attention on the higher levels of learning. That is, if we write our objectives at these levels, we are more likely to teach creative instruction that helps learners accomplish these objectives.

Most instructional specialists argue that effective objectives (and well-designed courses) should always include some higher-order objectives and not center exclusively around retention and understanding. Yet it is understood that in most curricula there are foundational knowledge and comprehension requirements that must be achieved before higher-order objectives can be addressed.

### The Role of Verbs in Learning Objectives

A statement about the content to be learned in a course (e.g., “understand calculation queries”) does not tell us what students are supposed to be able to do with the content. Are they supposed to define it? Explain it? Apply it? To write effective objectives, we suggest the use of action verbs that clarify what the learner will do to demonstrate understanding. Some verbs are more commonly used with certain levels of learning objectives.

#### **Bloom’s Levels of Learning**    **Action Verbs**

<b>Knowledge</b>	Define, list, name, describe, tell, identify, show, label, quote (tell the “who,” “when,” “where”)
<b>Comprehension</b>	Explain, describe, summarize, interpret, contrast, predict, distinguish, estimate, give examples
<b>Application</b>	Relate, determine, apply, demonstrate, calculate, examine, modify, discover, show

<b>Analysis</b>	Identify, analyze, explain, arrange, discriminate
<b>Synthesis</b>	Integrate, modify, rearrange, plan, create, design, compose
<b>Evaluation</b>	Decide, rank, convince, judge, summarize, evaluate

This is a modest list; you can certainly find other verbs that may better describe what you want your students to accomplish in your discipline.



**Example** – If you are teaching Theater and are in the process of producing a play, you might think your students are on the “application” level when you ask them to perform a particular role in that play. But, because they may be integrating their experience from previously performed roles, they would actually be on the “synthesis” level.

#### **When developing learning objectives, consider:**

- Good learning objectives are neither so narrowly stated that they represent the intended curriculum mechanically, nor so generally stated that they give little clarity to the intended goals.
- Objectives should not discourage creativity on the part of either instructor or learner, nor should they take away the need for the instructor to communicate the “challenge” of studying and learning to students.
- Other dangers to be aware of are objectives that insult students’ intelligence, that are restricted to lower-level cognitive skills, or that result in over concentration on small details of the content that cause students to miss the “big picture.”
- Ambiguous objectives -- such as “The students will understand what makes good theater”-- are not especially useful. Referring to a specific behavior or ability that the instructor wants the students to gain as a result of the instruction would be more useful.



#### **Examples**

- Theater students will list Smith’s five criteria for the evaluation of a play and give a rationale for each. (lower-level objective -- knowledge)
- Theater students will apply Smith’s five criteria to the evaluation of a play and present a rational for their evaluations.

(higher-level objective -- evaluation)

## Using Objectives to Structure a Course

In *Teaching Assistants: A Handbook of Teaching Ideas* (1982), John Andrews suggests that instructors answer the following questions as a means for planning an effective course. Instructors are then able to see how objectives shape and organize planning for other aspects of the class. Note that the questions initially focus on the end point and then work backward in time to the first action the instructor will take.

- How does the instructor want students to be changed as a result of this class? What should they be able to **do** that they cannot do now?
- How are these changes to be measured? What sort of performances (exams, projects, papers, etc.) will be the criteria?
- What subject matter will be covered to help students meet the expectations in numbers 1 and 2?
- What about the “how” of teaching? What sorts of formats, activities, or media will be used to help students practice the abilities needed to meet the expectations in numbers 1 and 2?
- How are expectations communicated to the students? What is their view of the objectives they will need to meet? (Note: Instruction is often very successful when students have been included in the development of their own learning objectives for the course.)

## Putting Objectives into Practice When Designing Imaginative Classroom Activities

Once objectives have been set, the next task is to put them into practice. Traditional classroom activities typically consist of lecture/discussion mixes or lectures coupled with laboratory demonstrations, yet a variety of other methods exist for the delivery of instruction. The lecture is one of the weakest types of learning activities if used inappropriately to deliver new information. Lectures are much more effective when they provide learning guidance for the students, that is, when they elaborate on what the student already knows.



**Suggestion** -- Begin with the learning objectives. Select alternative methods of instruction to the standard lecture and discussion format only if they will help students more easily attain the objectives that have been established for the course. For additional suggestions and information about nontraditional forms

of instruction, contact the [Center for Teaching and Learning](#).



**Related Chapter** -- Some active teaching techniques that are designed to get students more involved in learning are discussed in Chapter 8: Using Active Learning in the Classroom.

## **Course Design Guidelines**

- Select learning objectives according to clearly determined student needs.
- Analyze learning objectives to determine course content.
- Use course objectives to develop learning activities and methods of assessing student performance.
- Analyze student characteristics to identify those factors that should influence the way these learners are taught. (Chapter 4: Knowing Your Students presents information about various student characteristics.)
- Select learning activities that will maximize student achievement of course objectives.
- Use media to support learning activities and their intended outcomes. (Suggestions for using media are presented in Chapters 9 and 10.)
- Evaluate the effectiveness of your learning activities, media, and teaching performance to identify areas for improvement.

[Adapted with permission from *Teaching at The Ohio State University: A Handbook*, Center for Teaching Excellence (1990).]



**Suggestions** -- To meet the minimum requirements for effective instruction, instructors should:

- Specify the goals to be obtained.
- Formulate learning plans by first specifying the desired objectives of the instruction.
- Assess the effectiveness of the instruction.
- Make successive revisions of the learning activities for cumulative improvement as indicated by assessment results.



## Example of a Course Planning Worksheet

### Course Planning Worksheet

**Instructor(s):** Christopher Smith      **Course:** Technologies for Information Services

**Course Goal(s):** Students should acquire a knowledge and appreciation of computer hardware, software, and information systems for the provision of information services.

<b>Learning Objectives</b>	<b>Activities</b> (practice and feedback)	<b>Assessments</b>
<p>Discuss the fundamental issues related to the use of Information Technology, including their ethical dimensions, the requirements of dealing with rapid technological change, and the necessity for their application to newly emerging contexts.</p> <ul style="list-style-type: none"> <li>• Discuss a specific issue, using relation concepts and examples consistent with the course readings and lectures to support responses.</li> <li>• Explain the focus of the Information Technology profession on the user's needs, as compared to the Computer Science and Business perspectives.</li> <li>• Discuss the implications of technological convergence of computing and telecommunications.</li> </ul>	<p>Post to whole and/or work group threaded discussion in response to posted questions. Students will receive feedback to their postings from the instructor and other students.</p>	<p>Participation expected for every week's discussion; participation points awarded for responding and log-ins.</p>

### Your Own Course Planning Worksheet

This electronic, expandable [Course Planning Worksheet](#) (85 KB) will help you better align course objectives with your instruction and to plan assessments related to what your students should learn.



## **Resources and Related Chapters**

### **Resources**

- Andrews, J. (1982). *Teaching assistants: A handbook of teaching ideas*. San Diego, CA: University of California, San Diego, TA Development Program.

### **Related Chapters**

- Chapter 3: Creating a Syllabus outlines the many uses of a syllabus, including assistance in determining the learning objectives.
- Chapter 8: Using Active Learning in the Classroom discusses methods of active learning that may be chosen to align with learning objectives.
- Chapter 9: Instructional Media: Chalkboards to Video provides guidance on how to choose media.
- Chapter 14: Improving Your Teaching with Feedback and Chapter 12: Testing and Assessment Issues provide guidance on how to develop assessment of learning.

[Back to Table of Contents](#)

[On to Chapter 3: Creating a Syllabus](#)