

INTERNATIONAL COUNCIL FOR  
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*An introductory guide to  
integrated course design*

# **An introductory guide to integrated course design**

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## Introduction

**T**he purpose of this manual is to provide faculty with a practical guide for designing an integrated course. The following information is for those with little or no experience with integrated curricular design and is positioned as a “first-steps” guide for those embarking on this path.

As this guide is designed for novices, the various processes associated with course design have been simplified. We hope you find this guide to be simple, concise, understandable, and practical as you open the door to the rewarding and exciting world of integrated learning.

## Education

The sociologist Parker Palmer speaks of the power and utility of education, saying, “...knowledge gained through education is more than a tool for vocation; it is a source of self-understanding and gives an identity to the world in which one lives. The scope of the world is identical with the scope of one’s knowledge of it; knowledge of the world becomes the world itself” (Palmer, 2003). If Parker is accurate in his statement, then the role of the educator in shaping the knowledge of students could not be more important. As administrators and faculty of various educational institutions, mediating the relationship between the student as *knower* and the world as *known* is the great task set before us.

While engaging in this task, educators must avoid turning education into a spectator sport. In the classroom, students are often kept in the stands so they can watch the professionals play the knowledge game but not interfere (Palmer, 1990). This makes learning passive and joyless, and turns too many educated people into spectators of life itself. On the contrary, the classroom must be a meeting place for constant interplay between the knower and the known -- between interiority and community (O'Reilly, 1984). By creating learning experiences that invite students to make meaning of their world, they are drawn into the process of knowing (Caine & Caine, 2006; Fogarty, 1999; Palmer, 1990).

## Integrated learning

The word “integrate” is derived from the Latin word *integrare* which means to make whole or renew (Gavelek, Raphael, Biondo, & Wang, 2000). In the Oxford American Dictionary (2001), definitions of integrate include “to join as to form a larger, more comprehensive entity,” and “to blend, harmonize, synthesize, arrange, incorporate, unify, coordinate, and orchestrate”.

Informed by these definitions, integrated learning is a curricular approach that consciously blends and applies content from more than one discipline to better examine a central theme, issue, problem, topic, or experience (Gavelek, Raphael, Biondo, & Wang, 2000; Lake, n.d.; Lonning & DeFranco, 1998). Transcending departmentalized learning, integrated learning encourages “disciplinary contamination” where subjects are integrated and interrelated to address relevant issues of our time and context.

More than just a blending of disciplines, integrated learning is a move away from memorization and recitation of isolated facts to a more active engagement of concepts and connections between ideas, self, and society, that is, learning which is connected or *integrated* (Caine & Caine, 1990; Lake, n.d.). Learning in an integrated course is not an end in itself, but is ultimately a vehicle for knowledge essential for personal and social transformation (Walker, 1995).

## Why integrate?

The purpose for moving towards an integrated course design stems from the relationship between the classroom and the increasingly complex world of today. Trends towards global interconnectedness, the increase in pace and complexity, and the rapid expansion of knowledge has brought with it mounting concerns over classroom relevancy and the lack of connections between education and real-world issues (Lake, n.d.).

Integrated course design provides a solid response to these challenges by (a) facilitating the application of knowledge, (b) encouraging multiple disciplinary perspectives, (c) enhancing relationships between in-class content and out-of-class realities, (d) encouraging depth and breadth in understanding complex issues, and (e) enhancing student engagement through experiential and active learning (Gavelek, Raphael, Biondo, & Wang, 2000; Lake, n.d.; Lapp & Flood, 1994). Kovalik and Olsen’s (1994) research on “brain-compatible” learning supports an integrated course’s capacity to address these challenges by stating that “...the brain is designed to learn from the complexities of real life, an ability unchallenged by the simplicity of textbooks and seat work, as well as the artificial division of knowledge into subject areas.”

An appropriate follow-up to “Why integrate?” is to ask how one can do this for his or her course. The goal of the following pages is to assist in the understanding and doing of the very practical aspects of course integration.



## Components of knowledge

**B**efore delving into the specifics of integrated course design, it is essential to describe the following three knowledge components of significant learning, that is, learning that requires there be some kind of lasting change in the life of the learner (Fink, 2003). To illustrate the respective forms of knowledge, examples are given from a course on the topic of social justice.

### Foundational knowledge

As the first step in the learning process necessary for other kinds of learning, foundational knowledge is the understanding and remembering of key information and ideas associated with a subject or topic, for example, *understanding the roots of injustice and its various manifestations in society.*

### Applied knowledge

Students learn how to use the content to engage in critical thinking, creative projects, and learn practical skills, for example, *applying knowledge to confront and creatively address the sources of social injustice.*

### Integrated knowledge

Integration examines the connection between ideas, self, and society. This type of learning informs the student of the personal and social significance of the content being learned, for example, *using knowledge of and encounters with injustice to inform personal interactions and civic engagement.*

The above understanding of knowledge is the foundation from which the following discussion on course integration is derived.



## Designing an integrated course

Once the decision has been made to design an integrated course, the following steps provide a framework for a successful start:

1. Structure the course theme or topic
2. Identify course outcomes
3. Identify instructor configuration
4. Identify objectives
5. Identify learning actions
6. Identify assessment techniques
7. Review course alignment
8. Develop a syllabus
9. Implement, evaluate, and adjust

(Horikoshi, Shelleda, Smith, & Darche, n.d.; Lake, n.d.; Lapp & Flood, 1994; Walker, 1995).

The administration of these steps should be done in accordance with the particular needs and preferences of the institution. Yet one suggestion is to have the first three steps completed by an academic oversight committee, with the remaining six steps, beginning with “Identify objectives,” completed by the selected faculty who will manage the course. In this way, the institution sets the direction for the course while the faculty/instructors are given the freedom to customize the details to their particular strengths and preferences.

### List of definitions

Prior to examining the steps associated with designing an integrated course, a set of common definitions for this process must be established. The following definitions apply at both the institutional level as well as at the course level and follow a progression beginning with *outcomes* and concluding with *assessment*:

#### Outcomes

Outcomes are general and broadly define the purpose and end product of learning. Institutional, programme, and course outcomes provide answers to the questions (a) what is the overall purpose, and (b) how will the successful learner be changed? (Diamond, 1998; Stiles, 2000)

#### Objectives

Objectives thoroughly clarify and narrow the outcomes to specific and measurable goals; they identify what is to be accomplished in terms of

comprehension, application, and integration in order to fulfill the listed outcomes (North Carolina State University, 2004).

**Learning actions**

Learning actions are aligned with corresponding objectives to facilitate the fulfillment of the stated goal (Fink, 2003).

**Assessment**

Assessment procedures evaluate the extent to which the corresponding objective has been met, thereby reinforcing and confirming the desired outcomes at all levels (Fink, 2003).

## Step one: Structure the course theme

There are three general approaches for structuring an integrated theme for a course (Vars, 1991). They are as follows:

**Correlation**

In this approach, an already existing course incorporates relevant aspects from other disciplines while maintaining its general character and title. For example, the course “Introduction to Microeconomics” could be adjusted to incorporate aspects of sociology and religion.

**Fusion**

In this approach, a new course with a new name is created by fusing two or more current course offerings. To continue with the previous example, courses on microeconomics and sociology could be combined to create a new course called, “Welfare Economics and Social Change.”

**Core**

In this approach, a new course is created by first identifying relevant needs, problems, and concerns of society. Once this has been done, subject matter from any relevant discipline is brought in to analyze a particular issue. For example, religion faculty may determine that unjust treatment and discrimination towards Dalits is a relevant topic. As a result, the fields of religion, sociology, and microeconomics could be combined to create a new course titled, “Social justice: Religious insights for the Indian context.”

## Step two: Identify course outcomes

One of the challenges in designing an integrated course is to develop solid academic content that takes into account the needs of the learner as well as contextual issues/concerns (Vars, 1991). The first step in meeting this challenge is to establish proper outcomes from which the core components of the course are derived: learning objectives, learning actions, and assessment.

**Integrated outcomes**

There are two important principles that inform the outcomes for an integrated course. The first is outcomes must be integrated. That is, they must reflect the contextual/social reality within which the course discipline is to be learned -- this is the foundation for creating an integrated course.

The second is outcomes must drive the course. An outcomes driven course informs and generates objectives, learning actions, and assessment – they are each aligned with and reflect the stated outcomes (see Table 4) (Stiles, 2000).

*If the course is outcomes driven, then integrated outcomes yield an integrated course.*

**Establishing outcomes**

In simple terms, course outcomes can be determined by two questions:

1. What is the overall point of the course?
2. How will the successful learner be changed (Diamond, 1998; Stiles, 2000)?

**Outcomes statement**

Falling along a continuum from short- to long-term outcomes, the outcomes statement in a syllabus should describe in broad terms how the course will change the learner by stating:

1. desired comprehension (key information and ideas)
2. desired application (skills and ways of thinking)
3. desired integration (connections between ideas, self, and society)

(University of Maine, n.d.).

Take for example the following outcomes statement for the course, “Social justice: Religious insights for the Indian context”: *The learner is able to identify and understand the roots of injustice and its various manifestations in Indian society (comprehension); applies knowledge to confront and creatively address the sources of social injustice (application); knowledge of and encounters with injustice informs personal interactions and civic engagement (integration).*

**Step three: Identify instructor configuration**

Given the tendency for interdisciplinarity in integrated courses, an alternative format for course administration and instruction may be required. Three models for organizing the instruction and administration of an integrated course are listed below. *The decision to use a particular model should be informed by balancing the academic requirements of the outcomes statement with available faculty expertise and resources.* The three models are as follows:

**Total faculty**

In this model different “itinerant faculty” agree to teach on a particular theme or topic in their respective discipline for a period of time. The course is directed by a lead instructor who is responsible for the overall course administration and provides continuity throughout the changes in topics and instructors. For example, a course including the disciplines of sociology, Asian history, and political science would have a different instructor specializing in each of these areas who is responsible for that portion of the course.

**Interdisciplinary team**

In this model two to three faculty in different disciplines are assigned to team-administer a course, sharing the teaching load, assessment, and overall course

management. For example, a course titled “International Development and Sustainability” might include an economist and an environmental scientist sharing the course responsibilities.

**Block design**

In this model one faculty member is responsible for administering a course with interdisciplinary components. For example, in a course titled “Education and Social Change” the content might adequately be taught by an educationist with particular expertise in the history of social movements (Vars, 1991).

**Questions for co-instructors**

If possible, some form of co-instruction is recommended (rather than “Block Design”). When co-instructing, the following questions should be considered for determining how to allocate the course responsibilities (Vanderbilt, 2008):

1. What responsibilities will be shared by the instructors?
2. What responsibilities will be divided generally (across the semester or term) and specifically (on particular days)?
  - a. What are the responsibilities of the instructor “in charge” of a particular event or assignment?
  - b. How can the other instructor(s) facilitate student learning by assisting the instructor with the primary responsibility for a given event or assignment?
3. How will instructors handle disagreements about content or procedure without undermining one another or compromising student learning?
4. How and when will instructors meet to discuss the course and consider changes to content or procedures throughout the semester?

**Step four: Identity objectives**

The next step in developing a course is to determine the objectives. Objectives are constructed from the outcomes, that is, the overall purpose of the course. Objectives narrow the outcomes to a specific, concise, and measurable item (North Carolina State University, 2004). Because of their dependent relationship, if objectives are achieved, then outcomes will also have been met.

Table 1. *Relationship between outcomes and objectives*

<b>Outcomes</b>	generate	<b>Objectives</b>
broad general overall purpose	➔	narrow specific measurable
-----		
<p>Outcomes are general and broadly define the purpose of the course. Objectives specify, narrow, and measure the outcomes through assessment that gauges the extent to which the objective has been achieved. As objectives embody the outcomes, achieved objectives yield achieved outcomes.</p>		

Derived from the three types of significant learning described earlier (Fink, 2003), objectives should encompass and address foundational, applied, and integrated knowledge. On a course syllabus, there should be between 4 and 7 stated objectives. The basic procedure for formulating learning objectives is to ask a series of questions about each kind of learning that is potentially relevant.

**Foundational objectives**

- (a) What key *information and ideas* (facts, terms, concepts, relationships) are important for students to *understand and remember*?

**Applied objectives**

- (b) What kinds of *skills and ways of thinking* are important for students to learn?

**Integrated objectives**

- (c) What *connections* should students *recognize and make between* material in this course and *their own life*?
- (d) What *connections* should students *recognize and make between* course content and the *broader social context* within which they live?
- (e) What *changes* should be seen in what students *care* about (attitudes, interests, values)?

Following the above outline given for identifying objectives, the objectives for the course “Social justice: Religious insights for the Indian context” might look something like this:

*Foundational*

1. *Identity and understand the significance of key religious teachings on justice*
2. *Remember fundamental social and economic theories relevant to the Asian context*

*Applied*

3. *Be able to identify and critically analyze unjust social and economic structures, policies, and actions from a spiritual perspective*
4. *Be able to effectively and efficiently design measures for restoring justice based on social, economic, and religious principles*

*Integrated*

5. *Demonstrate just and gracious behavior in his/her interactions with others*
6. *Become an advocate for the underprivileged in his/her community*
7. *Value the importance of critically evaluating and addressing social and economic structures through a spiritual lens.*

When stating course objectives, it is important to begin each statement with a verb that indicates what it is the learners are to do. It is also important that these verbs be as concrete and specific as possible. See Table 2 on the following page for a suggested list of verbs to be used in constructing course objectives.

Table 2. *Verbs for course objectives*

<b><u>Foundational</u></b>		
remember	understand	identify
<b><u>Applied</u></b>		
use	judge	calculate
critique	do	create
manage	coordinate	solve
analyze	make decisions about...	assess
<b><u>Integrated</u></b>		
connect	relate	integrate
identify the interaction between...	identify similarities between...	compare
come to see themselves as...	understand others in terms of...	decide to become...
be more interested in...	value...	be ready to...

## Step five: Identify learning actions

The next step in course development is to design learning actions aligned with the stated course objectives that facilitate the desired type of knowledge. Building on the aforementioned three-part learning taxonomy, an effective set of actions includes, foundational, applied, and integrated action.

### Foundational action

The purpose of this learning action is to acquire foundational knowledge. The action for building foundational knowledge is *receiving information and ideas*. Information and ideas are communicated to the student through two methods:

- Primary sources, that is, reading original sources, examining original data
- Secondary sources, that is, lectures, textbook reading, etc.

### Applied action

The purpose of this type of action is to acquire applied knowledge. The action for generating applied knowledge is through *doing and observing experiences*. Doing and observing are experienced by the student in two ways:

- Direct or “real doing,” e.g., help design and construct a biogas plant (environmental science); observe and make notes on human behavior in an urban slum (sociology)
- Indirect or simulated, e.g., use a case-study to practice problem solving skills and decision making associated with designing a biogas plant; watch a film about urban slums and the stories of those living there.

### Integrated action

The purpose of this action is to acquire integrated knowledge. The action for building integrated knowledge is through *active reflection upon new information and experiences*. Active reflection is performed by the student through two progressions of thought:

- Micro implications, that is, what is the personal significance?
- Macro implications, that is, what is the social significance?

## Step six: Identify assessment techniques

Following the learning action, the next step is to evaluate the degree to which the student has met the corresponding objective. This is done through the subsequent set of assessment actions: foundational assessment, applied assessment, and integrated assessment.

### Foundational assessment

This form of assessment is detached from the learning action, that is, it uses a separate action such as a paper test or quiz to assess the learners *understanding of key information and ideas*. This can be done in the following ways:

- traditional paper and pencil tests
- in-class writing
- whole-class discussions
- classroom assessment techniques (CATs, see Appendix F)
  - minute paper
  - directed paraphrasing
  - one-sentence summary
  - application cards

(Angelo, & Cross, 1993; Davis, 1993).

### Applied assessment

In this method, the learning action is the assessment, that is, it evaluates the students *application of thoughts and skills*. This can be done in the following ways:

- role-play
- simulations
- observations
- small group problem solving
- case studies
- authentic projects (e.g. start and run a business).

### Integrated assessment

In integrated assessment, the learning action is the assessment in that it serves to evaluate the *recognition of connections between ideas, self, and society*. This can be accomplished through the following activities:

- journaling (reflective writing)
- concept mapping
- debates
- case studies
- service learning
- pre- and post-activity/course questionnaires
- term papers.

By progressing through the preceding learning actions and assessment tools, the outcomes driven course provides a solid foundation for significant learning to take place; that is, learning that imbues a lasting change in the life of the learner.

Table 3. *Assessment, action, and sources of knowledge*

	Foundational knowledge	Applied knowledge	Integrated knowledge
<b>Source</b>	<ul style="list-style-type: none"> <li>▪ primary data</li> <li>▪ secondary</li> </ul>	<ul style="list-style-type: none"> <li>▪ direct “doing”</li> <li>▪ indirect</li> </ul>	<ul style="list-style-type: none"> <li>▪ micro implications</li> <li>▪ macro</li> </ul>
<b>Action</b>	<ul style="list-style-type: none"> <li>▪ reading original texts</li> <li>▪ examining original data</li> <li>▪ lectures</li> <li>▪ textbooks</li> </ul>	<ul style="list-style-type: none"> <li>▪ role-playing</li> <li>▪ simulations</li> <li>▪ observations</li> <li>▪ group problem solving</li> <li>▪ case studies</li> <li>▪ authentic projects</li> </ul>	<ul style="list-style-type: none"> <li>▪ journaling</li> <li>▪ concept mapping</li> <li>▪ debates</li> <li>▪ case studies</li> <li>▪ service learning</li> <li>▪ pre- and post-action questionnaires</li> <li>▪ term papers</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>▪ traditional testing</li> <li>▪ in-class writing</li> <li>▪ whole-class discussions</li> <li>▪ classroom assessment techniques (CATs)</li> </ul>	<ul style="list-style-type: none"> <li>▪ learning action assesses the corresponding objective</li> </ul>	<ul style="list-style-type: none"> <li>▪ learning action assesses the corresponding objective</li> </ul>

## Step seven: Review course alignment

Conduct a final review of the course components ensuring their alignment with one another. The outcomes statement, course objectives, learning actions, and assessment should each reflect and support the other (as indicated by Table 4).

Table 4. *Driven by the outcomes statement, each corresponding objective, learning action, and assessment must be clearly linked and supportive of the other.*

Outcomes statement	Course objectives	Learning Actions	Assessment
desired comprehension	1) understand and remember key information and ideas	receive information and ideas	understanding of key information and ideas
desired application	2) learn skills and ways of thinking	doing and observing experiences	application of thoughts and skills
desired integration	3) make connections between ideas, self, and society	active reflection upon new information and experiences	recognition of connections between ideas, self, society

\* See Appendix B for course alignment worksheet

## Step eight: Develop a syllabus

Now the core of the integrated course is complete and the details of your course can be addressed. Develop a syllabus with daily plans that move from the whole of the course to its parts. The following is a list of suggested syllabus components (see Appendix E for template):

1. General management information: instructor’s name, office hours, phone, email address, etc.
2. Text and other required reading material
3. Outcomes statement
4. 4 to 7 course objectives



5. Structure and sequence of class activities, including due dates for major assignments, tests, and projects
6. Grading procedures
7. Course policies: attendance, work turned in late, make-up exams, penalties for academic misconduct, etc. (Altman & Cashin, 1992; DeZure, 1998).

## Step nine: Implement, evaluate, and adjust

After the following steps have been completed, the course should be implemented. Throughout the course, faculty should ask themselves how certain pieces can be improved upon, while conducting a formal evaluation at the conclusion of the course. While institutions may already have such evaluations in place, an example is given in Appendix G.

Once feedback has been collected, changes can be noted and made for the course's next offering. Following this, move on to integrating your next course (Horikoshi, Shelleda, Smith, & Darche, n.d.; Lake, n.d.; Lapp & Flood, 1994; Walker, 1995).

## Widespread curricular reform

One of the important things to remember about large-scale curricular reform is that it takes time (Lake, n.d.; Lapp & Flood, 1994). Rather than trying to convert to an integrated curriculum in one sudden sweep, there should be a gradual transition. Prior to implementing such a transition, institutional leaders ought to thoughtfully consider the cost of curricular reform by asking questions such as:

- Are appropriate resources available (both human and financial)?
- Are faculty and other institutional leaders committed to the curricular change?
- Can faculty be provided with sufficient support and training for successful implementation?
- Is there flexibility in faculty schedules to accommodate collaborative instruction schemes? (Lake, n.d.)

With systematic course integration, over two to three years institutions can make steady and meaningful curriculum reform. By following an action plan based on integrated outcomes, solid preparation, and meaningful feedback, a successful curricular reform can be achieved (Jacobs, 1991).

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## Appendices

Appendix A: Course design worksheet

Title of the course: \_\_\_\_\_

1. Structure of course theme, p. 5

(choose one)

- correlation
- fusion
- core

2. Course outcomes, p. 5

Answer “What is the point of the course?” by writing three sentences that broadly state the desired

(a) comprehension of content

\_\_\_\_\_

(b) application of content

\_\_\_\_\_

(c) integration of content

\_\_\_\_\_

3. Instructor configuration, p. 6

(choose one)

- total faculty
- interdisciplinary team
- block design

4. Course objectives, p. 7

Outcomes are thoroughly clarified and narrowed to 4 to 7 specific and measurable objectives. Use the following questions to determine course objectives.

(a) What key *information and ideas* are important for students to *understand and remember*?

(b) What kinds of *skills and ways of thinking* do students need to learn?

(c) What *connections* should students *recognize and make between* the course and *their own life*?

- (d) What *connections* should students recognize and make between course content and the *broader social context* within which they live?
- (e) What *changes* should be seen in what students *care* about (attitudes, interests, values)?

**5. Learning actions, p. 9**

Each learning action is aligned with a corresponding objective. Answer the following questions to form appropriate actions (see Table 3 on page 11).

- (a) What sources, data, lectures, and texts will be used for the *receiving of information and ideas*?
- (b) What kinds of doing and observing will be used for *developing skills and thinking*?
- (c) What type of active reflection will be used for *building connections between content and students' lives*?
- (d) What type of active reflection will be used for *building connections between content and the broader social context*?
- (e) What type of active reflection will be used for *facilitating change in what students care about*?

**6. Assessment techniques, p. 10**

Each assessment procedure evaluates the degree to which the student has met the corresponding objective. Answer the following questions to structure appropriate forms of assessment (see Table 3 on page 11).

- (a) How will students' *understanding of key information and ideas* be assessed?
- (b) How will the students' *application of thought and skills* be assessed?
- (c) How will students' *recognition of connections between content and their own life* be assessed?
- (d) How will students' *recognition of connections between content and the social context* be assessed?

(e) How will *changes in what students' care about* be assessed?

**7. Review course alignment, p. 11**

Conduct a review of core course components ensuring their alignment with one another by filling out *Appendix B: Course alignment worksheet*.

**8. Develop a syllabus, p. 11**

Address the details of the course by developing a syllabus with daily plans. Use *Appendix E: Syllabus template*.

**9. Co-instructor responsibilities, p. 7**

Upon developing the syllabus, use the following questions to review the co-instructor responsibilities:

(a) What responsibilities will be shared by the instructors?

(b) What responsibilities will be divided generally (across the semester or term) and specifically (on particular days)?

i. What are the responsibilities of the instructor “in charge” of a particular event or assignment?

ii. How can the other instructor(s) facilitate student learning by assisting the instructor with the primary responsibility for a given event or assignment?

(c) How will instructors handle disagreements about content or procedure without undermining one another or compromising student learning?

(d) How and when will instructors meet to discuss the course and consider changes to content or procedures throughout the semester?

**10. Implement, evaluate, and adjust, p. 12**

Once the course is underway faculty should ask themselves how certain portions can be improved while conducting a formal evaluation at its conclusion; *Appendix G: Course evaluation* may be used for this purpose.

**INTEGRATED COURSE DESIGN**

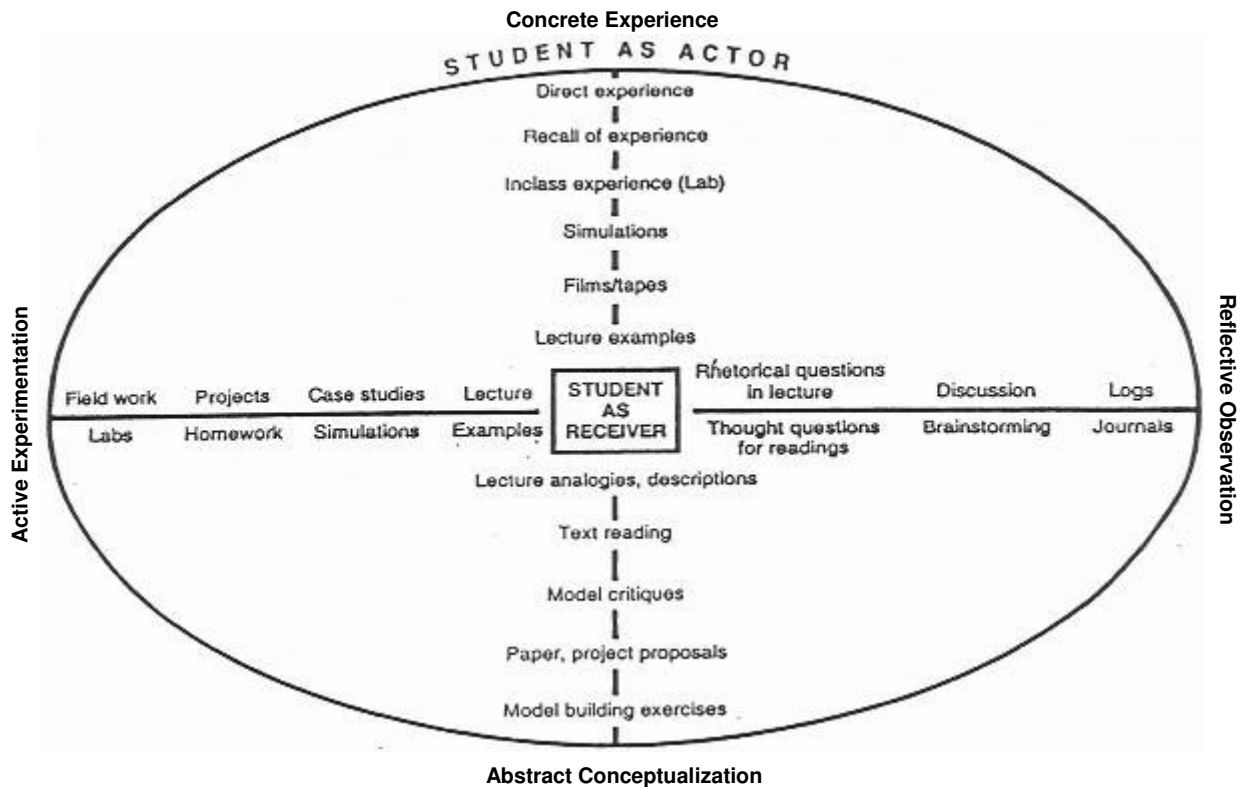
**Appendix B: Course alignment worksheet**

<b>Outcomes</b> desired comprehension (foundational)	<b>Objectives</b> understand and remember key information and ideas	<b>Learning actions</b> receive information and ideas	<b>Assessment</b> understanding of key information and ideas
	1.		
	2.		
<b>Outcomes</b> desired application (applied)	<b>Objectives</b> learn skills and ways of thinking	<b>Learning actions</b> doing and observing experiences	<b>Assessment</b> application of thoughts and skills
	3.		
	4.		
<b>Outcomes</b> desired integration (integrated)	<b>Objectives</b> make connections between ideas, self, and society	<b>Learning actions</b> active reflection upon new information and experiences	<b>Assessment</b> recognition of connections between ideas, self, society
	5.		
	6.		



**Appendix C: Learning actions for building integrated knowledge**

The below model from Svinicki and Dixon (1987) illustrates methods in the classroom to facilitate the shift from *student as receiver* to *student as actor*, thereby helping the learner to move from foundational knowledge to integrated knowledge.



### Appendix D: Configuring the course sequence

When conceptualizing and writing the syllabus, it is important to consider the general structure of the course. The following are examples of various configurations for achieving the desired objectives; note that a combination of configurations may be used for a single course.

#### **Hear – Read – Test**

Continuous series of lectures and reading assignments, periodically interrupted by quizzes, tests, and/or papers.

#### **Read – Write – Talk**

Sequence of reading, reflective writing, and whole class discussion that is repeated for each topic. (A variation is “Read – Talk – Write.”)

#### **Do – Read – Talk**

Start with field work or observations, followed by readings, and whole class discussions. (Write-up of field work/“doing” is sometimes included.)

#### **Hear – Do/See**

Present lectures, followed by field work or observations.

#### **Read – Test – Do**

Students do assigned readings, followed by mini-tests done individually or in small groups, then move on to group-based application projects.

#### **Know – Know-how – Do**

Work through a series of developmental stages: build foundational knowledge (3-5 weeks); build skills through small projects (3-5 weeks); work on larger, more complex applications (3-5 weeks).

(Adapted from Cornell, 2007)

**Appendix E: Syllabus template**

**Course information**

- Course title, course number, course section
- Credit hours
- Primary audience (for a specific major; general elective; to meet a core requirement, etc)
- Prerequisites (skills, specific courses, or minimum GPA required to succeed in the course)
- Course fees (if applicable)
- Location of classroom, meeting times

**Instructor and contact information**

- Name
- Title or rank
- Office location
- Office phone
- Home/mobile phone (optional)
- Office fax
- Office mailbox location/ homework or assignment drop-off location
- Office hours – scheduled time, extra hours available by appointment
- Email address
- If appropriate, Teaching Assistant (name, contact information)

**Course materials**

- Required text – title, author, edition, year, publisher
- Other required reading
  - Available on reserve at library or available for purchase
- Other materials
  - Notebook, binder, special calculator, supplies, etc.
- Recommended text/reading

**Course description**

(from institution’s catalog)

**Learning outcomes**

A written paragraph that answers, “What is the point of the course?” by broadly stating the desired (a) comprehension, (b) application, and (c) integration of course content.

**Course objectives**

Representing the outcomes, objectives should include 4 to 7 specific and measurable statements about what students will identify, understand, remember, analyze, design, demonstrate, etc...

**Course calendar** (visual display is important.)

- Daily or weekly schedule of topics
- Dates for exams,

Date	Topic/ Class Activity	Assignment Due
------	-----------------------	----------------

- quizzes, other assessment
- Due dates for papers, assignments, homework, and drafts
- Required special events - field work, museum, lecture, seminar

**Descriptions of specific assignments** (briefly for the syllabus; in detail later in term)

- Description of assignment
- Rationale for assignment: “Why am I assigning this?”
- Due dates/benchmark dates for drafts
- Criteria for evaluation
- Samples (when and where they can be found)

**Grading**

- Types of grades
- Percentage or weighting of each grade
- Policies / practices, e.g., “I will drop your lowest test grade.”
- Revisions / resubmits

**Course policies**

- Participation
- Attendance (tardiness, absences, illness, excused, unexcused)
  - reporting illness or injury
- Missed exams or assignments
- Extra credit
- Academic honesty
- Withdraw/ drop policy (the last date to drop class without academic penalty is --)
- Classroom etiquette/ civility statement
  - ethical behavior in all aspects of classroom and community living
  - civil discourse among all members of the campus community, treating each student with dignity and respect regardless of personal differences

**Resources/ Learning tools**

- Study tips/ how to succeed in this course
- Course web page
- Additional web pages pertaining to course material
- Tutors
- Computer lab
- Library texts on reserve
- Academic resource center

(Adapted from Altman & Cashin, 1992 and DeZure, 1998)

### Appendix E: Classroom Assessment Techniques (CATs)

Classroom Assessment Techniques (CATs) are simple, non-graded, anonymous, in-class activities that give the instructor and the students useful feedback on the learning process (Angelo & Cross, 1993; Davis, 1993). Classroom assessment differs from tests and other forms of student assessment in that it is aimed at course improvement, rather than at grade assignment. The primary goal is to better understand the students' learning as a way to improve course pedagogy.

CATs can be used in combination with applied and integrated assessment, but may be best suited for evaluating the understanding of key information and ideas, i.e. foundational knowledge, covered in instructor guided learning.

The following are a few examples of CATs used to receive feedback on student learning.

#### **Minute paper**

In the last few minutes of a class period, ask students to answer on a half-sheet of paper, "What is the most important point you learned today?" and "What point remains least clear to you?" The purpose is to elicit data about students' comprehension of a particular class session. Review responses and note any useful comments. During the next class period or periods emphasize the issues illuminated by the students' comments.

#### **Directed paraphrasing**

Ask students to write a layman's "translation" of something they have just learned -- geared to a specified individual or audience -- to assess their ability to comprehend and transfer concepts. Categorize student responses according to characteristics understood to be central or important. Analyze the responses both within and across categories, noting ways to address student needs.

#### **One-sentence summary**

Students summarize knowledge of a concept by constructing a single sentence that addresses "Who, when, where, how, and why?" The purpose is to require students to select only the defining features of an idea. Evaluate the quality of each summary, noting whether students have identified the essence of the concept and its interrelationships. Share your observations with the students.

#### **Application cards**

After teaching about an important theory, principle, or procedure, ask students to write down at least one real-world application for what they have just learned to determine how well they can transfer their learning. Read through the applications and categorize them according to their quality. Pick out a broad range of examples and present them to the class.

**Appendix D: Course evaluation**

Professor: \_\_\_\_\_  
 Course: \_\_\_\_\_  
 Academic semester: \_\_\_\_\_  
 Date: \_\_\_\_\_

This form is designed to obtain feedback from you regarding the current course. Your honest and constructive opinion will be very useful to ensure and improve the quality of this course. Please take your time and carefully answer all the questions below. Thank you.

**Part I**

Please use the scale below to respond to the following items:

Very much = 5; Much = 4; Somewhat = 3; A little = 2; Not at all = 1

*Class activities.* How much did each of the following aspects of the class help your learning?

- \_\_\_\_ 1. Lecture presentations
- \_\_\_\_ 2. Discussion in class
- \_\_\_\_ 3. Group work in class
- \_\_\_\_ 4. Hands-on class activities

*Tests and assignments.* How much did each of the following aspects of the class help your learning?

- \_\_\_\_ 5. Number and spacing of tests/quizzes
- \_\_\_\_ 6. Mental challenge of assignments
- \_\_\_\_ 7. Grading system used
- \_\_\_\_ 8. Feedback received

*Resources.* How much did each of the following aspects of the class help your learning?

- \_\_\_\_ 9. Assigned textbook
- \_\_\_\_ 10. Other reading materials
- \_\_\_\_ 11. Class activities for each week
- \_\_\_\_ 12. Interaction between class work, reading, and assignments

*Support as a learner.* How much did each of the following aspects of the class help your learning?

- \_\_\_\_ 13. Quality of contact with the instructor
- \_\_\_\_ 14. Working with peers outside of class
- \_\_\_\_ 15. Overall administration of the course

**Part II**

Please use the scale below to respond to the following items:

Very much = 5; Much = 4; Somewhat = 3; A little = 2; Not at all = 1

How much has this course added to your skills in each of the following?

- \_\_\_\_ 16. Solving problems

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- \_\_\_ 17. Personal reflection upon meaning of content
- \_\_\_ 18. Critically reviewing information and data
- \_\_\_ 19. Working effectively with others
- \_\_\_ 20. Integrating content from various disciplines

To what extent did you make gains in the following as a result of this course?

- \_\_\_ 21. Understanding the main concepts
- \_\_\_ 22. Understanding the relationship between concepts
- \_\_\_ 23. Understanding how ideas in this class relate to those in other disciplines
- \_\_\_ 24. Understanding the relevance of course content to real world issues
- \_\_\_ 25. Ability to think through a problem or argument
- \_\_\_ 26. Confidence in ability to apply course content
- \_\_\_ 27. Comfort with engaging complex issues
- \_\_\_ 28. Appreciation for the topic

### **Part III**

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Answer the following questions (*use the other side of this sheet if necessary*)

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1. What did you like the most about this course?

2. What did you like the least about this course?

3. What central concept from this course will you remember and carry into other aspects of your life?

(Adapted from Cornell University, 2007 and Harvard College, 2007)