ONE MINUTE PAPER

Which activities have you found to be the most helpful during the Institute so far?

What would you like more of?

What would you like less of?

What important questions remain unanswered for you?

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DAY 2 | SESSION 1

SHARED EXPERIENCE OF RESEARCH

PART I | INDIVIDUAL REFLECTION & WRITING (8 minutes)

Think back over the course of your academic life. When did research or the research process truly "come alive" for you? Write about your experience. Provide as much detail as you possibly can.

- What was your experience?
- How old were you?
- Were there other people involved in bringing research alive for you?
- What did they do?
- How did you feel?
- What did you think?
- What other details do you remember?

PART I.A

Now come up with the one word that best describes your first experience with research. Write that word here.

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QUICKLY select a reporter for your group.

INSTRUCTIONS FOR GROUP REPORTERS | YOU WILL BE ASKED TO

1. Introduce members of your group (notes from Part II) to the cohort at large.
2. Describe the characteristic(s) or descriptor(s) that were shared by more than one of your group members relating to their initial research experience (notes from Part III)
3. Describe in greater detail the one personal story from among your group that best illustrates this characteristic.

PART II | GROUP INTRODUCTIONS (9 minutes)

Introduce yourselves to one another – share names, home institutions, departments and courses you will be working on during the Institute. Please BE BRIEF!

PART III | GROUP SHARING OF RESEARCH EXPERIENCES (24 minutes)

Go round the table, and share the experience you wrote about with your group.

See if you can identify any common characteristics among your experiences or descriptors. List common characteristics here.

Choose one personal story from among your group that best illustrates this characteristic or descriptor.

PART IV | GROUP REPORTS (19 minutes)

Reporters will introduce their group members and report out to the cohort on their group discussions, any shared descriptors of the research story, and one of the group's stories that Illustrate that descriptive term.

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WHAT LIBRARIANS OBSERVE ABOUT STUDENTS & RESEARCH

That students frequently . . .

view "library research" and "searching the Internet" as the same thing
expect to find everything on the Internet
think library catalogs, databases and search engines are all alike and interchangeable
are unaware that there are structured ways to identify and locate library materials
are random in their approach to research *("go for the search box")*
employ trial & error methods in searching for information and resources
use the first results they come up with
work from the verbatim assignment
    e.g., if the assignment contains the phrase "immigration to California, 1865-1990," that is the exact phrase that students will search
need help in re-framing their research question and establishing a reasonable focus
don't know how to recognize what they've uncovered through their research and can't evaluate its worth
are unable to interpret a citation
don't know why bibliographies exist
are unfamiliar with what "MLA" or other style manuals and why they would use them
think it's alright to plagiarize, especially from online content
think all online information is (or should be) free
under-estimate the time and effort it takes to conduct scholarly research
leave assignments to the last minute and want to get them over *fast*
take their cues from the professor
are excited by and value the research process … once they know how to do it

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USING BLOOM'S TAXONOMY TO WRITE LEARNING OUTCOMES

Bloom's taxonomy of educational is used by many instructors when defining learning objectives for classes and assignments. It describes objectives by level of cognitive complexity. *"Students will be able to …"*

TAXONOMY	IDENTIFYING CHARACTERISTICS	VERBS		
KNOWLEDGE	To know specific facts, terms, concepts, principles or theories; to test recognition and recall	Cite List Recognize Define Match Record	Describe Memorize Repeat Identify Name Reproduce	Know Outline Select Label Recall State
COMPREHENSION	To understand; interpret; explain; paraphrase	Arrange Explain Paraphrase Classify Extend Report Convert Generalize Restate	Describe Give examples Review Defend Indicate Select Diagram Infer Suggest	Discuss Locate Summarize Distinguish Match Tell Estimate Outline Translate
APPLICATION	To apply knowledge to new situations; to solve problems	Apply Illustrate Prepare Change Interpret Produce Compute Manipulate	Show how Construct Modify Sketch Demonstrate Operate Solve Discover	Organize Translate Dramatize Practice Use Employ Predict
ANALYSIS	To identify parts, relationships, organizing principles, to relate parts to the whole	Analyze Determine Inspect Appraise Diagram Investigate Arrange Differentiate Inventory Break down Discriminate	Outline Calculate Dissect Plan Categorize Distinguish Question Chart Examine Relate Compare	Experiment Select Contrast Identify Solve Criticize Illustrate Test Debate Infer

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SYNTHESIS	To create something; to integrate ideas into a pattern that was not clearly there before; to formulate a new theory; to recognize there is more than one correct answer	Arrange Devise Prepare Assemble Explain Produce Collect Formulate Propose Combine Forecast	Rearrange Compile Generate Reconstruct Compose Make Relate Construct Modify Reorganize Create	Organize Revise Design Perform Solve Develop Plan Tell Write
EVALUATION	To judge according to some set of criteria and state why	Appraise Discriminate Rate Assess Estimate Relate Choose why Evaluate Revise	Compare Explain Score Conclude Grade Select Contrast Judge Summarize	Criticize Justify Support Decide Interpret Value Defend Measure Verify

Source:

Gronlund, N. E. How to Write and Use Instructional Objectives, 4th edition. New York: Macmillan Publishing, 1991. Modeled after the work of Debra Gilchrist.

DAY 2 | SESSION 3

SUBJECT COURSE DISCUSSION

Working in faculty/librarian pairs, prepare a description of the subject course you wish to redevelop during the Institute. Describe the course as it currently exists.

Course Name & Number: **Department in which the course is offered:**

Course Level: ☐ **lower division (years 1-2)** ☐ **upper division (years 3-4)** ☐ **graduate (years 5+)**

Enrollment (How many students are typically in the class?):

Course Contributors: **Faculty Name(s):** _____ **Librarian Name(s):** _____ **Others (Teaching Assistants, Technologists, etc.):** _____

Course goals

Describe here -- in general terms – what you hope students will learn as a result of enrolling in this course.
This description will form the basis for developing specific course learning objectives/outcomes (on page 2 of this handout).

The aim of this course is to:

DAY 2 | SESSION 3

DAY 2 | SESSION 3

From Course Goals to Course Learning Objectives/Outcomes

Using your course goals as a framework, and referring to the handout entitled **USING BLOOM'S TAXONOMY TO WRITE LEARNING OUTCOMES**, define specifically what it is that you want your students to know or be able to do as a result of engaging in the learning process for this course.

Learning outcomes are statements that predict what learners will have gained as a result of their learning. Learning outcomes also serve to inform students of what they are expected to do, and the criteria that will be used to assess their learning. Use a separate line to describe each objective/outcome you have or wish to develop for your course. Choose one outcome to serve as the basis or your research assignment.

COURSE GOAL	**OBJECTIVES/OUTCOMES** "Students will know or be able to …" (the *what*) … in order to …" (the *why*)	**METHODS OF INSTRUCTION AND MATERIALS** (e.g. background readings, lecture, student observations, partner or group discussions, research assignment …)	**CONTRIBUTORS** (e.g. faculty, guest lecturers, librarians, instructional technologists, students …)	**PERFORMANCE INDICATORS** e.g. student oral presentations, poster sessions, debates, videos, reflective diaries, research products, examinations …)

COURSE GOAL	**OBJECTIVES/OUTCOMES** "Students will know or be able to …" (the what) … in order to …" (the why)	**METHODS OF INSTRUCTION AND MATERIALS** (e.g. background readings, lecture, student observations, partner or group discussions, research assignment …)	**CONTRIBUTORS** (e.g. faculty, guest lecturers, librarians, instructional technologists, students …)	**PERFORMANCE INDICATORS** e.g. student oral presentations, poster sessions, debates, videos, reflective diaries, research products, examinations …)

NOTES:

Learning objectives/outcomes can be articulated at the university or college level, department level, course level, and assignment level.

"Learning activities" designed for the course (also referred to as Methods of Instruction/Delivery) should enhance the learning objectives/outcomes, foster collaborative learning, and provide for both peer and instructor feedback.

Course learning objectives/outcomes should directly tie into the design of research assignments and the development of assessment criteria (although assessment is beyond the scope of the Institute) that are then used to judge student learning and achievement.

HELLENIC ACADEMIC LIBRARIES LINK
Library/Faculty Institute on Undergraduate Research

INFORMATION COMPETENCIES FOR HIGHER EDUCATION

Standard I The information competent student determines the nature and extent of the information needed.

Standard II The information competent student accesses needed information effectively and efficiently.

Standard III The information competent student evaluates information and sources critically and incorporates selected information into his or her knowledge base and value system.

Standard IV The information competent student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Standard V The information competent student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

I. The information competent student determines the nature and extent of the information needed.

POSSIBLE LEARNING OBJECTIVES/OUTCOMES | *"Students will be able to …"*

- confer with the instructor and participate in class and work group discussions to identify a research topic or information need
- develop a thesis statement and formulate research questions
- explore background sources (encyclopedias, chronologies, handbooks, etc.) to increase familiarity with the topic
- review and revise the information need to achieve a manageable focus
- identify key concepts and words that describe the research topic
- recognize that knowledge is organized into disciplines that influence the way in which information is accessed
- identify the purpose and audience of potential resources (e.g., popular versus scholarly, current versus historical)
- differentiate between primary and secondary sources, recognizing how their use and importance vary with each discipline
- recognize that information may need to be constructed using raw data from primary sources
- broaden the information seeking process beyond local resources when necessary by using resources at other locations or utilizing interlibrary loan services

Adapted from the Information Literacy Competency Standards for Higher Education endorsed by The American Association of Higher Education and Association of College & Research Libraries

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- describe criteria used to make information decisions and choices

II. The information competent student accesses needed information effectively and efficiently.

POSSIBLE LEARNING OBJECTIVES/OUTCOMES | *"Students will be able to …"*

- investigate the scope, content, and organization of information systems
- select the most appropriate information systems to access, given the information need
- identify and use keywords, synonyms and related terms to find needed information
- identify and use controlled vocabulary specific to the discipline or information retrieval systems
- implement search strategies in various information retrieval systems offering different user interfaces, protocols, terminology, and search parameters
- retrieve information in a variety of formats
- use various classification schemes (e.g., call number systems or book indexes) to locate information within a given work or within the library)
- retrieve information online or in-person using a variety of methods (e.g., library provided systems, interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
- use surveys, letters, interviews, and other forms of documentation to retrieve primary information
- assess the quantity and relevance of the search results to determine whether alternative information retrieval systems or strategies should be used
- select the most appropriate tools to extract, record and manage needed information (e.g., copy/paste functions, emailing, downloading, exporting, photocopying, scanning, audio/visual equipment, or bibliographic management systems)
- differentiate among the types of sources cited and properly cite a wide range of resources

II. The information competent student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

POSSIBLE LEARNING OBJECTIVES/OUTCOMES | *"Students will be able to …"*

- identify the value and differences among potential resources in a variety of formats (e.g., multimedia, databases, websites, data sets, audio/visual materials, books …)

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- restate in his/her own words and summarize main ideas to be extracted from the information gathered
- accurately select information and data that provides evidence for the topic
- analyze the structure and logic of supporting arguments or methods
- investigate differing viewpoints encountered in the literature
- compare new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information
- determine if original information need has been satisfied or if additional information is needed
- review search strategy and incorporate additional concepts as necessary
- articulate criteria for evaluating both the information and its sources
- consciously apply selected criteria to determine whether the information contradicts or verifies information from other sources
- determine probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
- recognize the cultural or other context within which the information was created and understand the impact of context on interpretation of the information
- examine and compare information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point-of-view, prejudice or deception
- test theories with discipline-appropriate techniques (e.g., simulators, experiments)
- validate understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners through a variety of mechanisms (e.g. interviews, listservs)
- use technology (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) to study the interaction of ideas or phenomena
- recognize interrelationships among concepts and combine them into potentially useful primary statements with supporting evidence
- determine whether to incorporate or reject viewpoints encountered
- integrate new information with previous information or knowledge
- synthesize main ideas to construct new concepts
- extend initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
- draw conclusions based upon information gathered
- Identify verbatim material that can be then appropriately quoted
- determine whether the new knowledge has an impact on the individual's value system and take steps to reconcile differences

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IV. Individually, or as a member of a group, the information competent student uses information.

POSSIBLE LEARNING OBJECTIVES/OUTCOMES | *"Students will be able to …"*

- recognize that existing information can be combined with original thought, experimentation, and/or analysis to produce new information
- apply new and prior information, knowledge, and skills to the planning and creation of product or performance
- organize content in a way that supports the purposes and form of the product or performance (e.g. outlines, drafts, storyboards)
- integrate new and prior information, including quotations and paraphrasing, in a manner that supports the purposes of the product or performance
- manipulate digital text, images, and data, as needed, transferring them from their original locations and formats to a new context
- revise the development process for the product or performance
- maintain a journal or log of activities related to the information seeking, evaluating, and communicating process
- choose a communication medium, format, and style that best supports the purposes of the product or performance and the intended audience
- communicate the product or performance effectively to others
- incorporate principles of design and communication
- communicate clearly to the intended audience

V. The information competent student understands the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

POSSIBLE LEARNING OBJECTIVES/OUTCOMES | *"Students will be able to …"*

- understand how information is produced, organized, and disseminated
- identify and discuss issues related to privacy and security in both the print and electronic environments
- identify and discuss issues related to free vs. fee-based access to information
- identify and discuss issues related to censorship and freedom of speech
- demonstrate an understanding of intellectual property, copyright, and fair use of copyrighted material

- follow laws, regulations, institutional policies, and etiquette related to the access and use of information resources
- participate in electronic discussions following accepted practices
- comply with institutional policies on access to information resources
- preserve the integrity of information resources, equipment, systems and facilities
- legally obtain, store, and disseminate text, data, images, or sounds
- demonstrate an understanding of plagiarism and not represent work attributable to others as their own
- demonstrate an understanding of institutional policies related to human subjects research
- acknowledge the use of information sources in communicating the product or performance
- select an appropriate documentation style and use it consistently to cite sources
- post permission granted notices, as needed, for copyrighted material

EXAMPLE

FROM STANDARD TO	**OBJECTIVE/OUTCOME TO . . . . . .**	**LEARNING ACTIVITIES**
Standard II	Students will be able to identify and use controlled vocabulary and terms specific to the discipline or database.	Students will be directed to the Library website and told to search for books on a given topic. They will be asked to report their results and indicate the type of search they performed and the words they searched. They will observe how the type of search and the choice of words will affect their results. Students will be directed to display the subject(s) or descriptor(s) attached to relevant records and then asked to perform a subject or descriptor search using this controlled vocabulary, noting the new results They will be directed to examine the titles (and abstracts where available) of the books they have retrieved to identify additional relevant discipline specific terminology to search.

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DAY 2 | SESSION 4 & DAY 3 | SESSION 4

FROM COURSE OBJECTIVES TO ASSIGNMENT OUTCOMES & DESIGN

Working in faculty/librarian pairs, refer to your completed **SUBJECT COURSE DISCUSSION** worksheet. Review the **OBJECTIVES/OUTCOMES** column and choose one important outcome for the course that would leand itself to having your students complete a research assignment. List that outcome.

COURSE OBJECTIVE/OUTCOME —

- Undergraduate research assignments provide a great opportunity to teach competencies that enable students to become independent researchers and critical thinkers.
- Clearly stated assignment outcomes help students understand what research skills they should acquire as a result of an assignment.
- Making research related outcomes clear and explicit to students & discussing their importance will motivate students to turn in better work. If you think research skills are important, so will your students.

PURPOSE OF THE RESEARCH ASSIGNMENT —

- What skill(s) or knowledge is the assignment being designed to impart?
- What do you want students to be able to know or be able to do as a result of the research assignment?
- How will these skills help them in this class and in the future?

For help in articulating the objectives/outcomes of the research assignment, refer to the **INFORMATION COMPETENCIES FOR HIGHER EDUCATION** handout.

The number, complexity, and range of outcomes you set should be appropriate to the size and level of the class, characteristics of your students, and amount of time you and they will spend on the assignment.

For the higher priority outcomes you've listed, students should be required to do something more extensive such as create a product for which they will received feedback.

List your objectives/outcomes for the research assignment here. *"As a result of this assignment, students will be able to . . ."*

ASSIGNMENT LEARNING OUTCOMES

1.

2.

3.

4.

5.

DAY 3 | SESSION 4 — ASSIGNMENT DESIGN

- State the objectives/outcomes of the assignment (refer to the preceding section)
- State the end product the students are expected to create or complete.
- In what ways will you design your assignment to focus on your key learning outcomes?
- Describe the steps that students will need to take to successfully complete the assignment.
- How will you communicate these steps to students?
- Describe the support that you (or others) will provide to students in order to successfully complete these steps (e.g. workshops, handouts, exemplars, resource lists, other?)
- Work with your librarian to develop strategies that will help students navigate the complex processes involved in completing the assignment.

For ideas in designing your assignment , refer to **IDEAS FOR LIBRARY RESEARCH ASSIGNMENTS**

ASSIGNMENT END PRODUCT —

ASSIGNMENT END PRODUCT (continued) —

STEPS REQUIRED TO COMPLETE THE ASSIGNMENT —

EXAMPLE

ASSIGNMENT OUTCOME	STEPS : WHAT DO STUDENTS NEED TO KNOW?	WHO WILL FACILITATE THE LEARNING? HOW WILL THEY LEARN IT?	HOW WILL THEY DEMONSTRATE THEIR LEARNING?	HOW WILL I JUDGE THEIR EFFFORT?
"Students will be able to consult and evaluate reference books appropriate to their topic in order to locate background information and statistics."	• Subject classification numbers for their topic • Reference books are shelved in a special location in the library • Role of reference books • Organization of individual reference books • Ways to view a purpose statement and what a reference work can tell you about itself • Criteria for examining and judging a reference book.	• Lecture • Discussion • Demonstration • Group work • Hands-on work • Worksheet • Problem based research assignment • Other?	Student will submit a paragraph describing the scope of the books s/he used, how it is organized, and why it was a good choice for their topic.	• Books cited are reference books • Description of the books includes as least 3 factors describing the scope of the work • Organization of the book is accurately described • Student states a minimum of four reasons why the book was a good choice for their topic. One may be opinion & 3 must be from the evaluative criteria list developed in class

RESOURCE LISTS —

Are there particular research tools you want students to use in completing the assignment? What tools or strategies will allow them to find the best quality information? . . . to be more efficient researchers? Are there tools students should avoid, and why?

DESCRIPTION OF THE SUPPORT TO BE PROVIDED TO STUDENTS TO COMPLETE THESE STEPS —

A NOTE ABOUT LIBRARIES & LIBRARIANS

- Library staff with subject specialties are knowledgeable about specialized resources within a discipline.
- Libraries may be able to offer course integrated instruction or tours, from basic orientation through specialized research sessions, create online tutorials, and/or assist in the development of worksheets
- Libraries may offer Course Reserves services or contribute to Course Management Systems (e.g., Blackboard , Moodle, Sakai, or others)

TIMING CONSIDERATIONS —

Consider how much time you'd like students to devote to research and design an assignment that allows them to experience success.
Does it make sense — and if so — in what ways can you break down the assignment into parts and set interim deadlines to assure students get started early and work continually on their research throughout the semester?

TROUBLESHOOTING ASSIGNMENTS —

Refer to the **ASSIGNMENT DESIGN CHECKLIST** to ensure your assignment is on track. In addition,

- Make sure sufficient copies of materials are accessible and available to all students completing the assignment. When a large class is directed to research a narrow topic or required to use a single text, all available copies of supporting materials may already be checked out and off library shelves.
- Make sure the library owns the materials and electronic resources you specify in the assignment.
- Be prepared to provide students guidance in identifying topics of appropriate scope.
- If you use the same assignment from year to year, make sure the information contained in it is up-to-date.