Instructing Graduate Students in the Use of a Marine Science Library

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ABSTRACT

One of the main objectives of teaching a credit course on the use of a marine science library to graduate students is to change their behavior toward libraries. The instructional units of such a class may include: 1) current awareness, 2) personal files, 3) information sources, 4) selected abstracting and indexing services, and 5) search strategy techniques applicable to on-line databases.

INTRODUCTION

At the Virginia Institute of Marine Science (VIMS) we teach library skills to our graduate students as part of a one credit course entitled "Literature Search and Scientific Writing." Half of the semester is under the direction of the librarian and half is taught the scientist in charge of the Editorial Committee. We established the course in response to the growing amount of individual library use instruction required of the Librarian. The classes seem more beneficial if the students have completed their core courses and have a dissertation or thesis topic in mind. Ten students make an optimum sized class.

Specific goals for a course will determine its content (1). My goal in teaching library skills is to change the behavior of our students; I want them to go about using the library in a different way after they have taken the course. For example, I want to see them every week in the new material section of the library, I want them to be able to find that interesting paper they read two months ago; and when they come for serious library research, I want them to have some idea of how to start their search. These three goals form the basis of the instructional units of the class. These units are outlined in Figure 1.

Ideally, my course should run a full semester. For now I fit it into a half semester by tailoring the course to the specific subject interests of the class based on a written statement from each student defining his or her research topic.

The class meets in the library once a week. There are no tests or term paper requirements. However, each student must design the strategy for an online literature search to be run at the completion of the course. Grades are based on this search strategy and class participation.
Figure 1. Instructional Units for Library Skills Class

Library Research in Marine Science

I. Current Awareness
   a. Societies and Organizations
   b. Newsletters
   c. Journals
   d. Indexing tools

II. Government Publications and Information Services
   a. U.S. government
   b. State Agencies
   c. International Organizations

III. Personal File Management

IV. Abstracting and Indexing Services

V. Online Literature Searching
   a. Data Base Selecting
   b. Search Strategy

INSTRUCTIONAL UNITS

CURRENT AWARENESS

The class begins with a presentation on some good ways to keep currently aware in one's field of interest. These include 1) participating in societies and association activities, 2) reading selected newsletters on marine affairs, such as, Ocean Science News, Washington Letter of Oceanography, 3) scanning the latest issues of journals in one's subject area, 4) examining tools like Current Contents and Marine Science Content Tables; and, 5) scanning current issues of abstracting and indexing services.

GOVERNMENT PUBLICATIONS AND INFORMATION SERVICES

Governmental information resources are so varied it is necessary to create some meaningful plan for presentation to the students (Appendix I). We discuss selected publications that provide environmental data, fishery statistics, and information services. Then the class breaks into two groups using the material to answer specific questions (Figures 2 and 3). Afterwards the students report their findings to their classmates.

Figure 2. Group A Questions on Navigational Aids

Locate the best chart for navigating the Rappahannock River (Rap.R.).
What charts will you need to sail from Gloucester Point to Carter Creek, Rap. R.?
What are the bottom characteristics of Carter Creek?

What time is high tide in Carter Creek, Rap. R., on September 13, 1985?
What time is slack water same place & date?
Figure 3. Group B Questions on Climatological Data

What is the monthly mean sea surface temperature off the Eastern Shore of VA for September 1985?

What is the average monthly temperature for Mathews, VA for September 1985?

What day of September 1985 had the strongest wind and from what direction did it blow in Norfolk, VA?

PERSONAL FILE MANAGEMENT

Students are responsive to encouragement and instruction in setting up a personal document system. Most have already had the frustration of losing papers in an unorganized file. I review some basic principles common to personal files and describe the system shown in Appendix II. This manual multiple access system with its complete record card and uniterm (subject) cards can easily be converted to a computerized system. Some useful references on personal file systems and software for reprint management are listed by Wanot (2).

ABSTRACTING AND INDEXING SERVICES

The abstracting and indexing services we study are listed in Figure 4. To acquire the skills for effective manual searching we sit around a large table in the abstract room and analyze each student’s research topic to determine the best abstracting service or services. Then each student

Figure 4. Abstracting and Indexing Services

Aquaculture Abstracts
Aquatic Sciences and Fisheries Abstracts
Biological Abstracts
Biological Abstracts/RRM
Chemical Abstracts
Chesapeake Bay Bibliography
Deep Sea Research-Oceanographic Literature Review
Dissertation Abstracts
Environmental Law Reporter
EPA Publications Bibliography
Geo Abstracts E. Sedimentology
Helminthological Abstracts
Oceanic Abstracts
Oceanographic Index
Pollution Abstracts
Protozoological Abstracts
Selected Water Resources Abstracts
Sport Fishery Abstracts
Wildlife Abstracts
Zoological Record
looks at an issue of the selected reference tool as we discuss its coverage, learn the types of indexes, and study the terminology. Key words are chosen and searched for in the issues at hand. Depending on the results, we may modify the search. This process is repeated for each topic. Some information services provide self-teaching guides that complement this instruction process.

ONLINE LITERATURE SEARCHING

The final session, online literature searching, is taught by my assistant librarian who runs all the online searching in our library. She presents some background information on commercial vendors, particularly DIALOG, and compares manual to online searching. The following necessary steps in preparing a search are fully explained: 1) selecting a database; 2) phrasing the search as a sentence; 3) selecting key words; and 4) nesting key words using Boolean logic. After this class the students should be prepared to complete the DIALOG search request form (Appendix III) and make appointments with her to run their searches. The library skills instruction has evolved over the past seven years. I have benefitted by being refreshed on information services and by locating new ones while preparing for the course each year. Students have given me positive feedback on its practical value to them. Whether they leave VIMS for careers in research, in teaching or in management, my goal for these students is a lifetime habit of good library skills.

REFERENCES


APPENDIX I

Government Publications and Services in the Marine Sciences

National Technical Information Services
  NTIS Bibliographic Data Base
  NTIS Abstract Newsletters
  Ocean Technology & Engineering

Federal Register
  VIMS Federal Register Service

National Oceanic & Atmospheric Administration
  National Ocean Service
    Nautical Charts
    U.S. Coast Pilots
    Tide Tables
    Tidal Current Tables
  National Estuarine Sanctuaries Program
  National Estuarine Inventory Atlas
National Weather Service  
Oceanographic Monthly Summary

National Marine Fisheries Service  
Northeast Fisheries Center Newsletter  
Southeast Fisheries Center Newsletter  
Fishery Bulletin  
Marine Fisheries Review  
NMFS Special Scientific Report - Fisheries  
NMFS Circulars  
Fishery Statistics of U.S.  
Fisheries of U.S. 19--  
Virginia Landings  
Fishery Market News

National Environmental Satellite, Data & Information Service  
National Climatic Data Center - Asheville, N.C.  
Climatological Data Virginia  
Climatological Data Maryland & Delaware  
Climatological Data National Summary  
Local Climatological Data Norfolk & Richmond  
Experimental Sea Surface Thermal Analysis

National Geophysical Data Center - Boulder, Colo.

National Oceanographic Data Center - Washington, D.C.  
Mariners Weather Log  
Oceanographic Monthly Summary  
OPDIN (Ocean Pollution Data & Information Network)

Assessment and Information Services Center - Washington, D.C.  
National Environmental Data Referral Service (NEDRES)  
Marine Environmental Assessment - Chesapeake Bay

Office of Oceanic and Atmospheric Research  
National Sea Grant Program

Department of the Interior  
Fish and Wildlife Service  
Sport Fishing Abstracts  
Wildlife Review  
Division of Biological Services Reports  
Endangered Species Technical Bulletin  
Fish Health News  
Fish and Wildlife Reference Service
National Park Service
   National Wild and Scenic Rivers System

Geological Survey
   New Publications of the U.S. Geological Survey
   Topographic Maps
   National Water Conditions
   Estimated Streamflow Entering Chesapeake Bay
   Virginia Water Resources Summary
   Water Resources Data - Virginia Water Year
   National Water Data Storage and Retrieval System
   Selected Water Resources Abstracts

Department of the Navy
   Naval Oceanography Command (includes Office of Oceanographer of the Navy)
   Marine Climatic Atlases of the World
   Nautical Almanac

Department of the Army
   U.S. Army Corps of Engineers
      Coastal Engineering Research Center
      Environmental Laboratory

Department of Defense
   Defense Mapping Agency

Department of Transportation
   U.S. Coast Guard
      Notice to Mariners
      Local Notice to Mariners
      Oceanographic Report
      Navigation Rules - Inland & International
      Light Lists

Department of State
   Bureau of Oceans & International Environmental & Scientific Affairs
      Law of the Sea
      International Fisheries Commission

Department of Agriculture
   Agricola Bibliographical Data Base
   Aquaculture Information Center
   Soil Conservation Service
      River Basin Surveys
      Watershed Planning
      Soil Surveys
Independent Agencies

Environmental Protection Agency
  EPA Publications Bibliography
  STORET (Storage & Retrieval for Water Quality Data)
  SWIRS (Solid Waste Information Retrieval System)
  Chesapeake Bay Program

National Aeronautics and Space Administration
  STAR (Scientific & Technical Aerospace Reports)

National Science Foundation
  NSF Bulletin

Smithsonian Institution
  Chesapeake Bay Center for Environmental Studies
  Smithsonian Oceanographic Sorting Center
  Smithsonian Contributions to Marine Sciences

National Academy of Sciences
  NAS Contributions

Intergovernmental Organizations

United Nations Organizations
  Food & Aquaculture Organization (FAO)
    Fisheries Technical Reports
    Yearbook of Fishery Statistics
    Aquatic Sciences & Fisheries Abstracts (developed ASFIS with IOC)

UNESCO
  IMS Newsletter
  UNESCO Reports in Marine Science
  Monographs on Oceanographic Methodology

Intergovernmental Oceanographic Commission

Northwest Atlantic Fisheries Organization (NAFO)
  formerly International Commission for Northwest Atlantic Fisheries (ICNAF)
    Scientific Council Studies
    Statistical Bulletin
International Council for the Exploration of the Seas (ICES)
Annales Biologiques
Cooperative Research Reports
Journal du Conseil
Rapports et Proces-Verbaux des Reunions

International Ice Patrol

International Whaling Commission

International Decade of Ocean Exploration

APPENDEX II

Multiple Access Retrieval System

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APPENDIX III

DIALOG Search Request

Name of requestor ____________________________ VIMS ext. __________

Date ______________ Charge account or contract no. (6 digits) ______________

Authorization for charge to this account ______________________________________

Detailed subject area requirements. Please describe your information needs as specifically as possible. Include keywords, synonyms, and taxonomic terms as appropriate, indicating any terms that may have special meaning to your request.

Restrictions: (year of publication, geographic location, language, etc.)

Purpose of search:
On-going research _______ Prospective research _______ Conference paper _______
Preparation of book or journal article _______
Other __________________________________________

Suggested data bases: (descriptions are available in DIALOG's Database Catalog)

Cost restrictions:

Comments:

RESULTS

Date Files searched Hits Approximate cost