

Helping Students Succeed at  
Identifying Organic Compounds:  
Optimizing Location and Content of  
a Guide to the Literature

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# Background

- An existing chemical information instruction program
- An established collaboration with faculty & students
- Existing library instruction for organic chemistry consisted of lectures with overheads and handouts

# Problems with Print Handout

- Time needed to hand out to >100 students
- Students would not have it when they came to the library
- Inefficient path to new web resources (CRC Handbook, SDBS)
- Printing, collation and paper cost encourage conservation of space

# Solution: Web Guide

- Conveniently available from any computer (dorms, library, etc) at any hour
- Students may work ahead or review.

Decided to include:

- efficient linked access to web based resources
- as many resources, editions, and formats as desired ( i.e. space is not an issue)
- detailed annotations describing which sources search what
- faculty and librarian search strategies previously mentioned in lecture notes
- contents from multiple print handouts

# Guide Layout

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This guide provides efficient access to selected property and spectra resources on the web and in the library that you can use to determine your unknown compound. Additionally, I've suggested ways to use the resources effectively. Contact me with your questions.

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- Overview
  - Interpreting Spectra
  - Properties of Organic Compounds
  - Matching Spectra
  - Derivatives
- Textbooks

Organization based on the problem solving sequence

See <http://www.library.rochester.edu/index.cfm?PAGE=339>

# Example Entries

## Strategies:

- What are you looking for? E.g., boiling point, melting point, specific gravity, solubility
- What information do you have? E.g., compound name, molecular formula, structure
- Choose a resource. See details about resources listed below.
- Generally, search by name if you have it.
- If this doesn't work, try molecular formula - a more general search. Use Hill order.  
DON'T GIVE UP! Try another resource. Email: [scardinal@library.rochester.edu](mailto:scardinal@library.rochester.edu).

## Print Resource:

"Dictionary of Organic Compounds" 1996+

**REF QD291 .D53 1996**

Size: ~65,000 entries

Search by: name (IUPAC/ CAS/ Common names), molecular formula, or synonym.

Data retrieved: appearance of compound, structures, unusual solubilities, boiling point, melting point, hazards, and literature references, including index to spectra libraries.

Best feature: Large. Great molecular formula index, and substance name index.

## Web Resource:

SDBS: Integrated Spectral Data Base System for Organic Compounds

Size: 13,700 HNMR; 47,300 IR

Search by compound name; molecular formula, CAS RN;  
number of atoms of C, H, O, N; chemical shift (1H and 13C).

Best feature: Contains both IR and NMR spectra. Can see proton identification with NMR (analysis).

# The Guide is Successful!

- 1. Convenient web access**
- 2. High use**
- 3. Professor used as teaching aid**
- 4. Non-chemistry library staff more comfortable and confident when helping organic chemistry students**
- 5. Easy to find access points**
- 6. Students used the resources (especially SDBS)**
- 7. High student satisfaction**

# 1. Convenient Web Access

Students used the guide from:



**their dorm/ home (90% )**



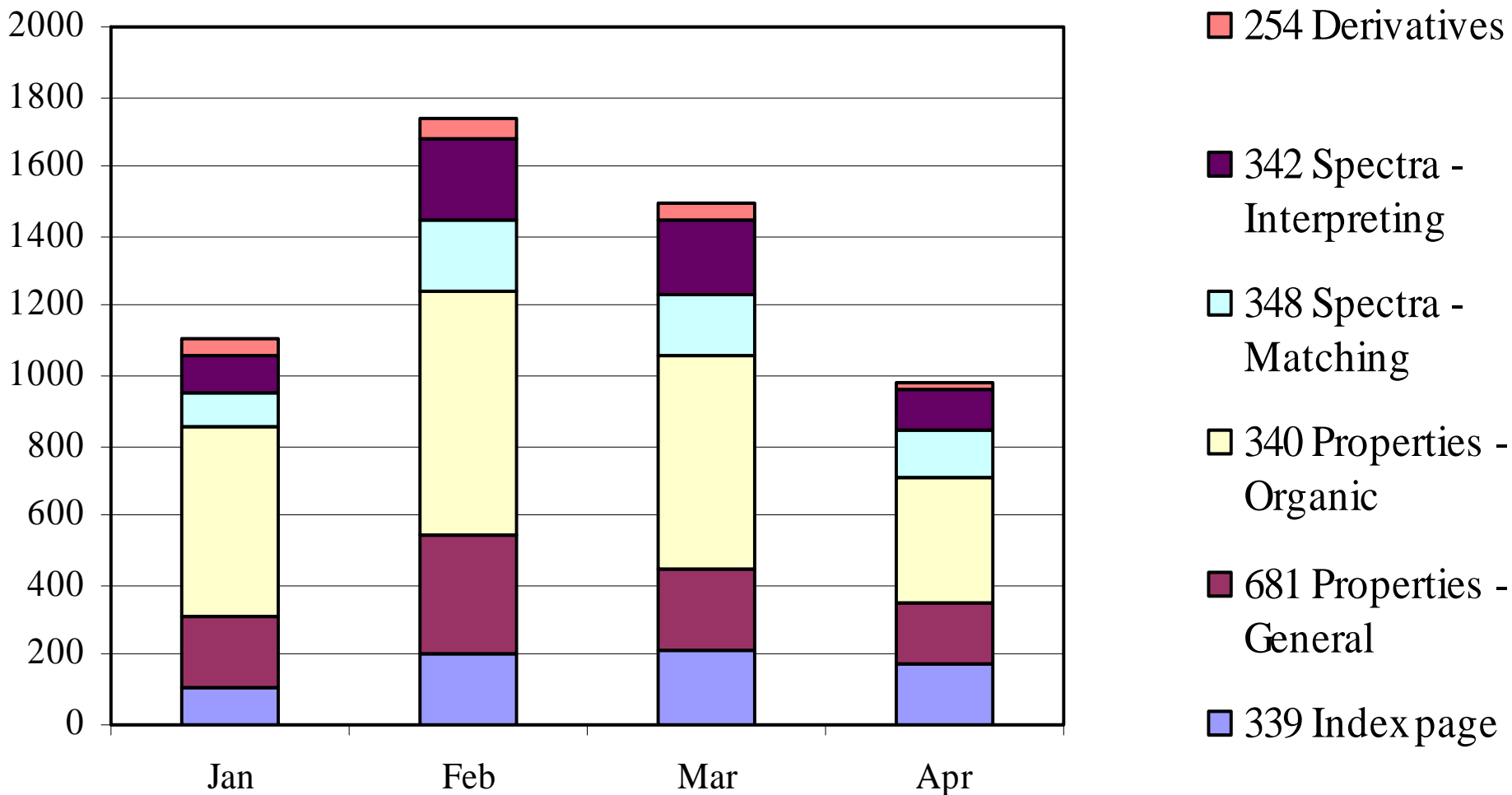
**the library**

**(53% total/8% lib only)**

**and the computing center (2%)**

## 2. High Use Statistics

### Number of Visits by Month and Page



# Student Use Survey

- Organic Chemistry 2<sup>nd</sup> semester
- 100 out of 156 students enrolled responded
- 90 out of 100 students said that they used the guide
- Professor gave out at beginning of lab lecture and gave 5 points for completing

# Semester Use, Spring 2004

| <b>Page Name</b>                  | <b>Student Reported Use</b> | <b>Web Stats</b> |
|-----------------------------------|-----------------------------|------------------|
| Properties of Substances*         | 374                         | 871              |
| Matching Spectra                  | 372                         | 591              |
| Properties of Organic Compounds   | 243                         | 2060**           |
| Interpreting Spectra              | 226                         | 625              |
| How to Find Your Unknown Compound | 144                         | 659              |
| Derivatives                       | 64                          | 166**            |

\*An entry page to guide

\*\*Lots of outside use!

### 3. Faculty use the guide as:

- a quick overhead that highlights useful resources
- a way to introduce library materials without requiring much time

### 4. Library Staff use the guide as:

- a way to prepare for questions from Organic Chemistry students
- a checklist of URLs and resources especially useful for infrequently used resources
- a cheat sheet. It answers “What’s PJM?”
- a training tool for new reference staff

Note: Users from generic ISPs and other universities use the guide, especially the Organic Properties & Derivative Pages

# 5. Access Points from Library Home

1. Course Resources
2. Subject Resources
3. Libraries A-Z to Science Library
4. Search Site
5. Knowing URL

5 <http://www.lib.rochester.edu/>

## River Campus Libraries

4 → [Ask a Librarian](#)  
→ [Search Site](#)

### Finding

- 1
- 2  ISI, WorldCat, etc.  
  
 Biology, History, etc.  
  
 Manuscripts, etc.

### Voyager Catalog

Find Books, Journals, and More:

[Custom Search](#) [Help - Voyager Catalog](#)

### Borrowing

[Renewing Login](#)  
[Requesting and Borrowing](#)  
[Interlibrary Loan](#)

### Library Information

- 3 [Help](#) - All Library Topics  
[Hours](#)  
[Jobs](#)  
[Libraries A to Z](#)  
[Maps](#) - Library and Campus



Statue of Industry, Rush Rhees Library

### News and Events

-  **Focus groups and testing for library web design** Students and Staff: an opportunity to participate in focus groups and testing for library web ...
-  **Books Of All Genres Needed For Friends' Sale** Mysteries and thrillers, romance, classics, children's, science fiction, history, contemporary fiction, ...
-  **Four Centuries of Floral Images to Celebrate the Iris Friendship Garden** Beautiful illustrations of irises, peonies, and other flowers in rarely-seen ...

→ [More News and Events](#)

### Giving

[Friends of the Library](#)

# Student's Path to Guide

- Library web page (24 students)
- River Campus Libraries (11)
- Course Resources and Reserves (24)
- Carlson Science Library web page (16)
- Search (e.g. Google) (3)
- Chemistry Subject Page (2)
- Someone helped find the URL (1)

# Student Bonding with CoURse Reserves System

System contains all reserves.

Students learn simple path to pages and remember it .

Each page becomes available when reserves are added or when librarian or professor requests.


University of Rochester > River Campus Libraries > Find Course Resources and Reserves >

## ORGANIC CHM II: \*LAB LECTURE\*

[Ask a Librarian Live!](#)  
[Search Site](#)

**Course Code(s):** CHM 208  
▶ [Reserve Material via Voyager](#) (See "Help With Reserves and Plug-Ins" below)  
▶ [Course Homepage](#)

**Professor:** Joseph Dinnocenzo - [jpd@jpdmac.chem.rochester.edu](mailto:jpd@jpdmac.chem.rochester.edu)  
**Department:** [Chemistry](#)  
**Semester:** Spring 2004 (This course is from a previous/future semester)

 **Chemistry Librarian:** Sue Cardinal  
**Location:** [Carlson Science & Engineering Library](#)  
**Email:** [scardinal@library.rochester.edu](mailto:scardinal@library.rochester.edu)  
**Phone:** 585-275-9007

Assignment Resources | **Websites** | Books

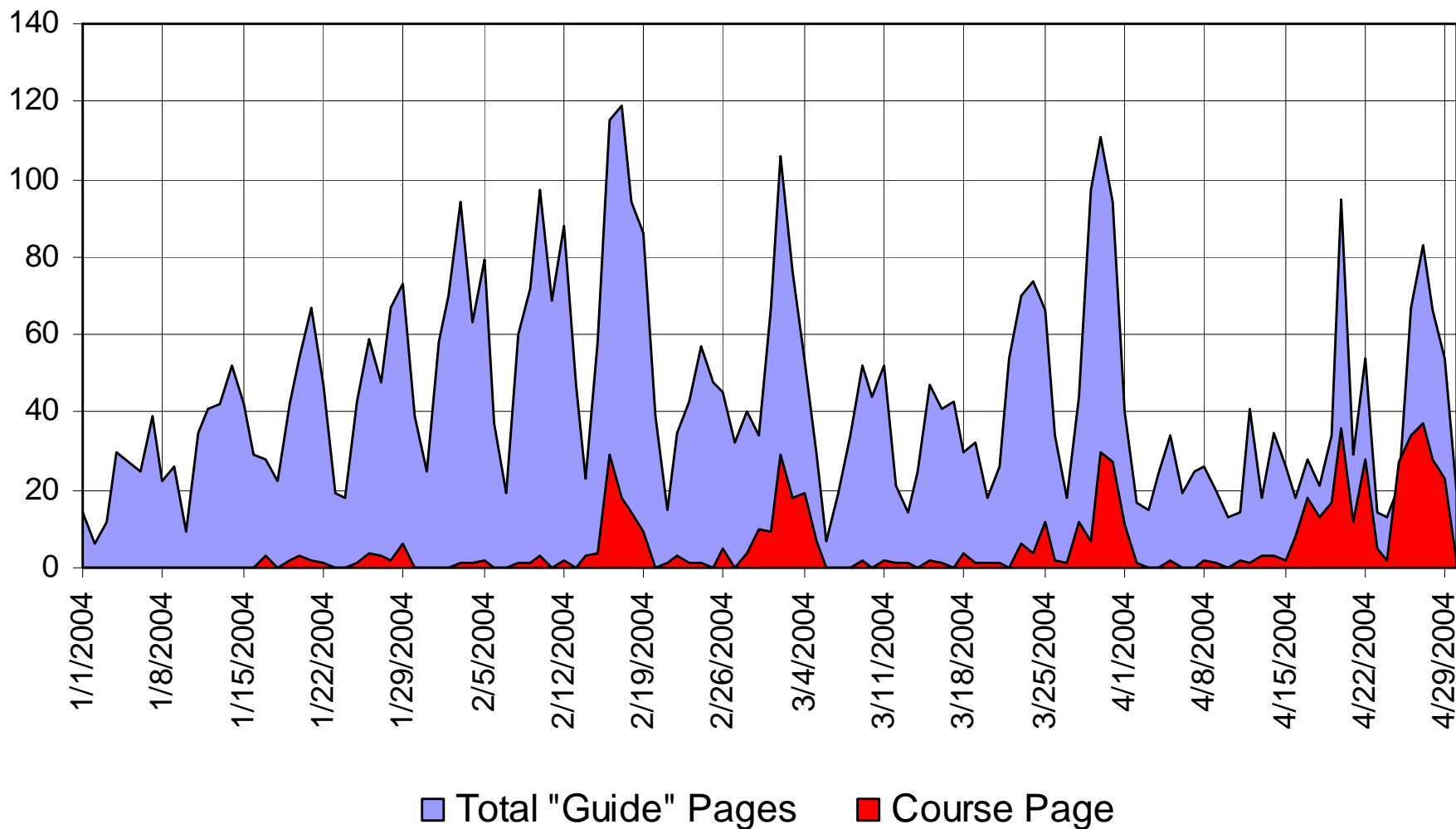
**How to find your unknown compound** - Recommended resources and strategies for identifying your unknown compound  
[Get it Online](#)

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**Related Links**

- [Access From Home - Instructions](#) 
- [Virtual Tour of Carlson Library](#)
- [Learning Assistance Services](#)
- [Writing and Citing](#)

# Comparison of Total Daily Visits to Views of the CoURse Page



# 6. What Students Said They Used

- Spectra (78)
  - SDDBS (23)
  - Matching (40)
  - Interpretation (5)
- Chemical Properties (34)
  - Melting & boiling point

# Other resources for guide users

- 45% said they used additional materials:
  - Textbooks, Lab book/ manual, lecture notes, TA handouts, TA, class web page
  - Google, friend, web pages, unspecified
  - Aldrich, SDBS
  - Other chemistry books
  - Course resources/ reserves
- 55% did not answer the question
- Conclusion: Guide supplied information they needed because they didn't indicate many resources outside the guide.

# Ten Students Who Did Not Use the Guide Preferred:

- **SDBS** only (6)
- **Google**™ (1 - “It works for everything just like magic!”)
- Info from lecture, textbooks, TA handouts (1),
- MSDS (1)
- Other unspecified books in the library (1).

# 7. Student Satisfaction & Suggestions

64 students reported satisfaction with location.

58 students reported satisfaction with the content.

## **Suggestions:**

1. Link from faculty's course page.
2. Improve internal linkage and organization.
3. Put a hard copy on reserve.
4. Send the guide in an e-mail.

5. Have “one-stop-shopping” resource containing all spectra needed.
6. “Relate products/ reactants of experiments to biology/ medical areas by providing links to exciting discoveries and scientific papers.”
7. Include in-depth tutorials.
8. Improve design and navigation.
9. Improve ease of use.
10. Add graphics.
11. Add fun facts.
12. Select and emphasize key databases.

# Library Staff Comments

- Don't change a thing.
- Like the detailed annotations.
- Purchase and add new web resources.
- Remove the print resources.
- Keep the print resources.
- Prioritize the content.

# Faculty Comments

- Review Spectra Interpretation web resources.
- Support teaching of deductive reasoning.

# Possible Future Steps

- Organize guide to support faculty teaching.
- Emphasize web resources.
- Link to faculty pages.
- Make it as user friendly as possible without sacrificing learning opportunities.