

## 1.3 Resources for the Present and the Future

### *Introduction*

One of the goals of this course is to facilitate and promote students' technological capabilities. In this section, we will explore some Web-based resources for mathematics and point you toward some resource collections that will prove useful both in this course and others and in your future academic careers.

The number of high-quality resources has grown tremendously since the advent of the publicly accessible Internet in the mid-1990s. College faculty around the world have been writing and creating mathematical resources for their students and colleagues and many of these educators have posted their resources on the World Wide Web (www) for viewing and use by anyone who chooses to do so. Due to the capabilities of online delivery of content, some of these resources offer much more than simple text-based content; animations, simulations and interactive Java applets are examples of Web-based resources that can go far beyond the traditional textbook in terms of facilitating conceptual understanding of mathematics.

*Math Is Everywhere!* makes use of a number of these resources in conjunction with its textual content in order to promote active learning and to engage students more effectively in their learning processes. Throughout this course you will be directed to specific Web sites for further learning exercises and opportunities; in addition, you will at times be asked to conduct Internet searches for relevant Web sites and to evaluate these sites in terms of their relevance and effectiveness. In both cases, you will discover that there is a wealth of mathematical information on the Internet that is quite valuable with regard to your learning and mastering mathematical ideas and concepts. We will now embark on a very brief tour of the Internet and its resources for mathematics.

### *Intro to the Internet*

Even though the Internet search engines found at [www.google.com](http://www.google.com) and elsewhere employ some very effective and sophisticated search routines, and even though you may find some relevant information for a topic of interest, the Web pages returned to you on an Internet search contain much information that is either irrelevant to your topic or of questionable or undesirable quality.

In response to the need for an effective means by which to find high-quality, relevant information on a given academic topic, especially at the college level, an educational organization was formed in 1997 with the purpose of creating a digital library of educational learning objects and materials that were peer-reviewed and rated for quality of content, potential effectiveness as a learning tool, and ease of use. This organization became known as MERLOT, the *Multimedia Educational Resource for Learning and Online Teaching*.

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Since that time, MERLOT ([www.merlot.org](http://www.merlot.org)) has grown and developed to become one of the nation's leading educational resources for online content. At the end of this section, you will have an opportunity to explore MERLOT and its resources and to join the organization if you wish. Almost all of the Web sites that are referenced in this text are registered with MERLOT, and you will find excellent resources there for a number of disciplines including Mathematics, Physics, Chemistry, Biology, History, Music, World Languages, Psychology, Teacher Education, Health Sciences, and more.

***Some Mathematical Resources of Interest***

With regard to mathematics, there are a number of excellent Web sites that provide mathematical content at various educational levels: K–12, college and university, and beyond. Outlined below are a few of the leading sites in our nation. Please visit these sites when you have some free time—the journey will be quite rewarding.

➤ **MathForum**—[www.mathforum.org](http://www.mathforum.org)

MathForum is currently housed at Drexel University and is a leading center for mathematics and mathematics education on the Internet at the K–12 level and beyond. MathForum provides a wide array of educational materials, activities, discussion boards, references, and much more. Its “*Ask Dr. Math*” and “*Problem of the Week*” features have been popular for many years.

For more information, please visit their information page at:

<http://www.mathforum.org/about.forum.html>

➤ **The National Council of Teachers of Mathematics (NCTM)**—[www.nctm.org](http://www.nctm.org)

NCTM is our nation's largest mathematics education organization for K–12 teachers. NCTM's *Principles and Standards for School Mathematics* (©2000) was written and developed to provide thorough and detailed guidelines for excellence in mathematics instruction. While this site is primarily for teachers, it also offers downloadable content for students in the form of articles from the various NCTM journals. There is also a section entitled *Families* in which interesting projects and ideas are presented at elementary, middle and high school levels.

For more information, please visit their information page at:

<http://www.nctm.org/about/default.aspx?id=166>

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➤ **The Mathematical Association of America (MAA)—[www.maa.org](http://www.maa.org)**

The MAA is the nation's leading professional society with respect to math education at the undergraduate level. One of its many features is an online series of monthly columns by various authors such as Keith Devlin, Ivars Peterson and others. These monthly articles are always interesting and entertaining and well worth the occasional (or regular) visit.

For more information, please visit their information page at:  
<http://www.maa.org/Aboutmaa/mission.html>

➤ **Multimedia Educational Resource for Learning and Online Teaching (MERLOT)—[www.merlot.org](http://www.merlot.org)**

MERLOT is an organization that is devoted to providing access to high-quality, peer-reviewed online resources for teaching and learning. It encompasses more than a dozen academic disciplines and, while its primary focus is at the college level, there are many resources at the K–12 level as well.

I have had the privilege of serving as the Editor for the MERLOT Mathematics Editorial Board for the past several years and can personally testify to the value that MERLOT provides to the educational community. Many of the Web sites referenced in this textbook are registered with MERLOT. At the end of this section, you will have an opportunity to explore MERLOT in more depth via one of the *Exercises and Projects for Fun and Profit*.

For more information, please visit their information page at:  
<http://taste.merlot.org/>

*Conclusion*

Many new and valuable educational resources are being created and posted on the Internet for the benefit of students and readers everywhere. As you proceed through this course of study, I trust that you will benefit from the educational resources themselves and that your technology skills will improve as well.

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*Exercises and Projects for Fun and Profit*

*Internet Investigations*

1. **MathForum:** Visit MathForum at [www.mathforum.org](http://www.mathforum.org) and explore the materials posted there. In particular, visit the links entitled *Ask Dr. Math* and *Problems of the Week*. **Write a brief report** (minimum of one-half page) on your reactions to the materials and on what interested you most.
2. **NCTM:** Visit NCTM at [www.nctm.org](http://www.nctm.org) and explore the materials posted there. In particular, visit the links entitled *High School* and *Higher Education*. **Write a brief report** (minimum of one-half page) on your reactions to the materials and on what interested you most.
3. **MAA:** Visit the Mathematical Association of America at [www.maa.org](http://www.maa.org) and explore the materials posted there. In particular, visit the links to the *Columns* and read two or more of the columns that interest you. **Write a brief report** (minimum of one-half page) on your reactions to the materials and on what interested you most.
4. **MERLOT:** Visit MERLOT at [www.merlot.org](http://www.merlot.org) and explore the materials posted there. In particular, visit the link to *MERLOT Awards: Exemplary Learning Materials*, <http://taste.merlot.org/MERLOTAwards/ExemplaryLearningMaterials.html>, and investigate some of the award-winning materials in various disciplines (you may choose your favorite disciplines). **Write a brief report** (minimum of one-half page) on your reactions to the materials and on what interested you most.

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*Creative Project:*  
*MERLOT and You*

## MERLOT and You

[www.merlot.org](http://www.merlot.org)

Have you ever wondered how to find high-quality Web sites with online materials pertaining to a particular educational topic? Or searched the Internet and found some pertinent materials but wondered about their accuracy or authenticity?

***I have good news for you! Help has arrived!***

***MERLOT, the Multimedia Educational Resource for Learning and Online Teaching***, is an organization that provides access to high-quality online resources for faculty and students around the world. At the heart of MERLOT is a college and university faculty peer-review process by which online learning objects and materials are evaluated and reviewed for the benefit of MERLOT users. This digital collection of peer reviews and their accompanying Web site links is one of MERLOT's primary services to the academic community.

The topical categorization schemes along with a simple one-to-five-star rating system and short but descriptive evaluations of the learning materials give MERLOT users immediate access to the best that the academic community has to offer in terms of online educational resources (primarily college-level, but some K–12 resources as well). MERLOT currently provides peer reviews in over a dozen major disciplines, including mathematics.

We will be using a number of resources this semester that are catalogued in MERLOT and in this project you will get firsthand experience with the MERLOT repository and some of its features. As you will see, many of these resources are quite extensive and some have applications that go far beyond the classroom.

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***My hope is that you will not only enjoy our learning experiences together during this course of study but that you will be inspired to become lifelong learners, particularly in areas that involve mathematics and life.***

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MERLOT is a resource to which you will be able to return in years to come and find a distinguished collection of links to high-quality educational materials.

MERLOT is also a growing community of educators and those interested in Web-based educational resources. You are welcome to join MERLOT if you wish; among other benefits, members have the added privilege of being able to create their own permanent Personal Collections of resources within MERLOT in which they can store links to their favorite sites. Membership in MERLOT is free and very simple—you only need to provide your name, email address (MERLOT does not give these addresses to any other organizations) and school or

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organization. Please click on the link entitled **Become a Member today! Membership is FREE** on the MERLOT home page if you are interested; I highly recommend it! ☺

**Assignments:**

*For each assignment, please complete the following steps:*

1. Type the MERLOT address into your web browser: **www.merlot.org**
2. Briefly read the home page.
3. Click on the subject link for **Mathematics and Statistics** in the navigation panel on the left.
4. Click on the link for **Mathematics**. Notice the list of mathematics categories. Notice also the site search engine in the top right-hand corner of the page entitled **Search Materials**. This is a very useful feature, one that you may want to use during your visits here. Also note the ten learning materials with annotated star ratings listed on the page.
5. Scroll down the page until you find the links listed below for the assignments. For each MERLOT learning material, the large-print **title link** leads to the **Material Detail** page and a description of the material, its peer review and member comments (if any); on the **Material Detail** page, the link entitled **go to material** takes you directly to the learning material itself.

<i>assignment</i>	<i>MERLOT learning materials</i>
<i>Assignment #1</i>	Fibonacci Numbers and the Golden Section
<i>Assignment #2</i>	MacTutor History of Mathematics Archives
<i>Assignment #3</i>	Cut-the-Knot!
<i>Assignment #4</i>	Larry Green's Applet Page

6. Please click on the **title link** for a given assignment learning material and read the summary description of the site on its **Material Detail** page.
7. Then click on the link entitled **Peer Reviews** near the top right of this page and read the review of the site. Click the **Back** button on your browser to return to the **Material Detail** page.
8. Click on the link entitled **go to material** to see what the peer review has described.
9. Spend some time investigating the site and exploring its various features.
10. **Write a brief report** (minimum of one-half page) concerning the site's features that you found to be of most interest. Please report on a minimum of three items of interest.

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*This project is designed to introduce you to MERLOT and to give you a brief encounter with its features. I hope that you enjoy the project and that you get a sense of the value here in terms of resources and learning materials. Please join MERLOT, make use of its resources for Math and other academic subjects, and continue on to become a lifelong learner! ☺*

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*Notes:*