

AMSER Spotlight: Journal of Chemical Education (JCE) Digital Library

AMSER often collaborates with other digital collections in order to bring their quality materials to its users. In each issue of our quarterly, we highlight a collection we have integrated into AMSER. Recently, we have partnered with JCE (Journal of Chemical Education). Like AMSER, JCE's Digital Library is supported by the National Science Foundation (NSF) and is part of the National Science Digital Library (NSDL). JCE brings their own extensive content expertise to the task of selecting and cataloging online chemistry resources and JCE's Digital Library consists of resources from JCE Online as well as other high quality chemistry resources culled from the Internet. AMSER has carefully selected those resources from JCE that are free and fit the needs of community and technical college faculty and students in the applied math and sciences. The resources in JCE's Digital Library utilize the same well-developed and highly respected review process used for the Journal of Chemical Education. JCE constantly strives to ensure "that only materials of the highest quality, in terms of content, pedagogical value, and ease of use, become permanent elements of the collection." Similar to the collection methods of AMSER, JCE's materials are collected via JCE staff, user submission, as well as other collections outside JCE.



Over the past few months, AMSER has integrated the best of JCE's applicable resources and collections and this impressive body of materials includes:

JCE Featured Molecules These interactive images are linked to molecular structures or other graphic images from articles in the print Journal of Chemical Education. AMSER has integrated many of these Featured Molecule resources and cover such topics as: Molecular Models of DNA, Perfume Chemistry, Glycerol, and Nicotine to name only a few.

JCE ChemInfo This subset of JCE Online contains chemical information resources for teachers, researchers, and students. It includes JCE ChemInfo: Organic, which is a collection of useful organic chemistry, biochemistry, and medicinal chemistry Internet resources. Examples of JCE ChemInfo topics users can find in AMSER include: Acronyms, Named Reactions, Named Reagents, Bioinorganic Terms, and Stereochemistry to name only a few.

Many AMSER users study or teach in the field of chemistry and we believe that AMSER's incorporation of JCE's

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fantastic collection of online resources should prove an invaluable addition. The AMSER staff expects that the JCE resources will prove useful in a full range of educational settings – from laboratories to libraries to the classroom.

You can find JCE DLib at:
<http://www.jce.divched.org/JCEDLib/>

Do you know about a great collection of resources that you'd like to see us integrate into AMSER? Do you have a learning object or a handout that you know really works to help students truly understand a specific concept? If you have resources (large, small, or in-between) that you would like to see featured in AMSER, please e-mail us at resources@amser.org, or follow the link at the bottom of the AMSER home page to submit a resource suggestion.



In this Issue...

AMSER Spotlight: JCE Digital Library	1
New on AMSER: Featured Resources	2
AMSER User's Corner	3
Calendar of AMSER Events	4
Contact Us	4

New on AMSER: Featured Resources

As part of a new project, AMSER has begun identifying Featured Resources, items within AMSER of especially high quality that will be featured on our home page. (If you don't see them on the home page, click the "see the current featured & new resources" link at the bottom left.) While all the resources in AMSER undergo a thorough selection process, the Featured Resources have been recommended as the "best of the best" by AMSER staff and AMSER users. To become a Featured Resource, a resource must rate highly in all of the following attributes:

Thorough and well-written content in various areas of applied mathematics and science

Ready-to-use educational materials

Accessible to all users (including those with assistive devices)

Up-to-date and maintained regularly with few, if any, advertisements

Design is especially professional and user friendly

AMSER adds Featured Resources on a regular basis and they can be found displayed prominently on the home page at the top left corner. The resources are highlighted with a full description and an image of the site, which can be scrolled over for a larger view. Here are some samples of our Featured Resources:

Annenberg Media Learner.org
<http://www.learner.org>

Here, Annenberg Media presents a collection of multimedia teaching resources for science, math, art,

history, English, and foreign languages. Organized by both level and by subject, the resources provide teaching aids, activities, movies, recommended readings and exercises, brief lectures, and informative encyclopedic entries. The options at learner.org are best suited for teachers planning lessons and syllabi, although students may also find them helpful.



Scroll over the home page image for a larger view

Physics Applets

<http://jersey.uoregon.edu/vlab/>

Multimedia instructional tools for the physical sciences are rather in vogue these days, and a number of universities and colleges have developed creative resources in this area. One such set of resources happens to be the Physics Applets collection, created by staff members at the University of Oregon's physics department. The interactive applets are divided into four sections, including mechanics, thermodynamics, astrophysics, and energy & environment. In total, there are over thirty different applets, and they include those that illustrate the concepts of potential energy, Kepler's Third Law, and atomic emission.

The Tree of Life Web Project

<http://tolweb.org/tree/phylogeny.html>

This project, originally created by biologists David and Wayne Maddison

at the University of Arizona, is a "collaborative Internet project containing information about phylogeny and biodiversity." Initially intended for use by biologists seeking taxonomic information, this Web resource has met with great enthusiasm from the public, biology instructors, and students. With frequent additions to the database, this Web site has expanded enormously since 1996. Recent additions include a new page for Strepsiptera (twisted-wing parasites) and for Annelida (segmented worms).

Maths Challenge.net

<http://www.mathschallenge.net>

Maths Challenge is a fun activity to build mathematical and reasoning skills. Each month during the school year, a new set of math problems are posted online. There are miscellaneous problems at junior and senior levels, cryptography and code breaking problems, and computer programming challenges. Each section is appropriate for a different age range, but the most basic material starts at age eleven and increases from there. To participate in the programming exercises, a simple registration is required to keep track of each user's progress. There are initially three beginning level problems, but new levels are unlocked as previous ones are completed.

AMSER invites our users to check out our Featured Resources on the home page and enjoy the best of the best! Also, we would love to hear from users who have found a resource within AMSER that they feel deserves to be a Featured Resource. Please email feedback@amser.org with any suggestions, or suggest a brand new resource by following the link at the bottom of the AMSER home page.

<http://amser.org>



Maria H. Andersen is a member of the mathematics faculty at Muskegon Community College in Muskegon, MI and has a passion for helping faculty learn how to “be dangerous” with technology and relate to the Internet generation. Maria’s background includes Bachelor’s degrees in Mathematics, Chemistry, and Environmental Biology, an M.B.A. and M.S. in Mathematics, and she is working on her Ph.D. dissertation in Higher Education Leadership on faculty development on instructional technology in STEM disciplines. Maria has taught everything from developmental algebra through Calculus II including several web-enhanced, hybrid, and online math courses.

Maria obtained valuable experience creating math text, graphics, and tables through her authorship of numerous test bank and solution manual supplements for various levels of math texts. Recently, she has authored a unique set of Instructor Resources (activities and assessments) to accompany the 4th edition Tussy/Gustafson Algebra Series. Maria’s interests lie in faculty development and she recently led a seven-week “Math on the Web” workshop at MCC and a two-week technology training for the math/science instructors at

a local high school. Outside academia, Maria is the president of a consulting business (Andersen Algebra Consulting LLC) and provides her expertise to several math-related businesses with a web presence. Maria’s web presence can be found in a number of places, including Teaching College Math (<http://www.TeachingCollegeMath.com>), the Teaching College Math Technology Blog (<http://www.TCMTechologyBlog.blogspot.com>), the Muskegon Community College Homepage for Maria H. Andersen (<http://www.muskegoncc.edu/pages/1469.asp>), and at Maria’s personal blog (<http://www.BusynessGirl.blogspot.com>).

Maria had this to say about AMSER:

I was asked by the AMSER staff to peruse their repository and pull out some of my favorites to share with you. I thought I would focus on Web 2.0 resources that I haven’t already used. Why Web 2.0? Everywhere I turn on the math-net, I find text-oriented mathematical reading material; I consider these sites to be texts, lessons, or reviews, although they are often called “tutorials.” That doesn’t seem quite right. To me, a tutorial has to be interactive. A student does not hire a textbook when they need help. They hire a tutor because they hope the interaction will improve their learning. It is always with great skepticism that I go to a website claiming to have “tutorials.” The modern-day Internet can do so much more, so I went looking on AMSER for materials that provide an interactive or visual experience - the materials that are truly leveraging the power of the 2nd generation Internet. Here are my discoveries:

*First, try browsing the Mathematics collection of **ExploreLearning** (<http://www.explorelearning.com>) to find some great interactive demos on a wide variety of algebra and pre-calculus topics. One*

*of my favorites is **Inequalities Involving Absolute Values**, which I recently taught in my Intermediate Algebra class. You could use this “gizmo” in the classroom to demonstrate how solving a linear absolute value equation or inequality relates visually to the graph of the problem, even if students have not yet learned to graph absolute value functions. Without signing up for an ExploreLearning account, you can only view the gizmos for 5 minutes each, so plan accordingly.*

*I mentioned that I often find sites that claim to be “tutorials” when really the site just provides text. In this case, however, I was pleased to find a set of tutorials that do ask questions and provide feedback. The site is from **ZweigMedia** (<http://www.zweigmedia.com/RealWorld>) and contains online tutorials for finite mathematics and applied calculus as well as algebra. The site is even available in Spanish - these guys have been busy!*

*The **BrainTrax** (<http://braintrax.mst.edu>) site is one of the first sites I have seen that tries to tackle mathematics in a non-linear fashion. The site uses mind-mapping techniques to link concepts throughout algebra, trigonometry, and calculus. While the material in the maps is text-based, I really like the way they have created three levels of difficulty for each concept.*

*One last site, **Duke University Connected Curriculum Project Materials** (<http://www.math.duke.edu/education/ccp/materials>), also consists of cross-referenced math topics and application areas. Most of the modules come with modules in MathCad, Maple, Mathematica, and MatLab. Each “problem” is a stand-alone module consisting of background information (with cited references), data to be evaluated, an overview of the mathematics, questions for the students to answer, and more! I*

continued on page 4

like to assign "projects" to my classes, and any of these modules would make excellent projects. They are thoroughly researched and some of the best that I have seen.

Mathematics demos and sites are being added to the Internet so quickly that instructors are going to have to rely on organizations like AMSER, Merlot, and MathDL to act as a clearinghouse and editorial board for new net-based resources. However, we will also have to participate in the social aspect of rating resources for their quality as a reference, applicability to teaching, and usability by students. We will need to help these repositories label material (wiki-style) with more detail to make it easier to find. We can also participate by identifying gaps in resources that need to be filled. The only way we will collectively cope with the growing collection of demos and websites for math is if we all participate in the critique and categorization of these materials.

In the past, I have made some suggestions to AMSER about how they can modify their ratings system and labeling to help us to help them. You may have some suggestions for improvements to the site or great resources. If so, send an email to feedback@amser.org and let them know.

See the resources mentioned here in Maria's AMSER Favorites folder at <http://amser.org/wyandersen/mariasfavorites/>

Would you like to be featured in a future AMSER Quarterly? We'd love to hear from you and learn about your favorite AMSER resources and how you've been using them in an educational setting. Please e-mail us at amser@amser.org for details.

Calendar of AMSER Events

Where in the world is AMSER?

We'll be at various conferences and meetings this year and we'd love to talk to you about what you're doing with digital resources and how we can make AMSER more useful to you and your students. Here's where we'll be and when:

March League of Innovations March 2-5, 2008 Denver, Colorado	April American Association of Community Colleges (AACC) April 5-8, 2008 Philadelphia, Pennsylvania	May National Institute for Staff & Organizational Development (NISOD) May 25-28, 2008 Austin, Texas	July - August MathFest July 31-Aug 1, 2008 Madison, Wisconsin
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For more AMSER events and links go to <http://www.amser.org/events>

Contact Information

Have a question? Want to share information about how you're using AMSER or other digital materials in your classroom? Please contact us!

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