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# A Compendium of Free Online Courses, Books and Other Resources

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No matter how much you have tried to learn before taking on an agriculture project, gaps in knowledge are inevitable. You might even be working in the area of agriculture without any formal training in the subject.

ECHO shares helpful agricultural information through our [ECHOcommunity.org](http://ECHOcommunity.org) website, and we also offer courses in Tropical Agriculture at our Florida campus. Taking a course can be advantageous, because information is presented in a logical and sequential way. But people do not always have the resources needed to travel and take a course.

The internet is almost unbelievable in its power to make information widely available. It is also making information organized as coursework more and more accessible. In this article, we highlight a number of free opportunities for learning online.

## Online Courses

\*Note that information in most of these courses will not necessarily be targeted to tropical agriculture. In the list below, the first few courses are marked TE (primarily temperate), TR (primarily tropical) or N (not primarily oriented toward any climate).

**Rodale Institute.** Rodale Institute has an online course for those who want to transition from conventional to organic farming. It includes sections on soils, crops and marketing. Even if you do not want organic certification in the USA, many of the principles will be helpful to people interested in learning about organic agriculture. N. [www.rodaleinstitute.org/course](http://www.rodaleinstitute.org/course) (<http://www.rodaleinstitute.org/course>)

**Sustainable Agriculture Course from Sustainable Agriculture Research and Education (SARE).** N. [www.sare.org/](http://www.sare.org/) (<http://www.sare.org/>) Learning-Center/Courses-and-Curricula/ National-Continuing-Education-Program/ Course-1-Sustainable-Agriculture

**OpenCourseWare (OCW).** More than 120 universities worldwide are part of the OpenCourseWare (OCW) movement. OCW provides free access to course materials that include "syllabi, video or audio lectures, notes, homework assignments, illustrations, and so on."

The OCW consortium includes many schools in the United States, including MIT (Massachusetts Institute of Technology), Tufts, Johns Hopkins, Michigan State, Michigan, Notre Dame and Utah State. Internationally, schools in China, Japan and Spain are part of the consortium. For information, see [www.ocwconsortium.org](http://www.ocwconsortium.org) and [www.ocw.mit.edu](http://www.ocw.mit.edu). (<http://www.ocw.mit.edu/>) The sites allow users to search for relevant courses. Some that I thought looked interesting include: The Challenge of World Poverty; Food and Culture; Social Issues and GM [Genetically Modified] Crops; and Information Technology and Global Development. Some of the courses available through the MIT site have been translated into different languages.

**Open Culture** ([www.openculture.com/](http://www.openculture.com/)

(<http://www.openculture.com/>) freeonlinecourses). This site lists over 550 free online courses from some well-known and respected universities. The courses are from a wide range of disciplines. For example:

- Geography (Food and the Environment; Geography of World Cultures; Globalization)
- Political Science, International Relations, and Law (Faith and Globalization—one instructor is author and well-known theologian Miroslav Volf)
- Biology (Fundamentals of Biology; Biochemistry; Genomes and Diversity; Genetic Engineering in Medicine, Agriculture and Law; Molecules and Cells)
- Chemistry (General Chemistry; Organic Chemistry)
- Engineering (Direct Solar/Thermal to Electrical Energy Conversion Technologies; Introduction to Engineering)
- Environment and Natural Resources (Global Warming: Understanding the Forecast)
- Mathematics (several introductory courses about statistics)
- Public Health (Epidemiology and Control of Infectious Diseases)
- Business (Principles and Concepts; Marketing 123)

Learn Languages for Free ([www.openculture.com/freelanguagelessons](http://www.openculture.com/freelanguagelessons)). If you want to learn a new language, this site has links to free courses for over 40 languages. The courses originate from a variety of sources, including the Peace Corps and the BBC (British Broadcasting Corporation).

Coursera ([www.coursera.org/](http://www.coursera.org/)). (<http://www.coursera.org/>.) 33 universities have partnered with Coursera to offer online courses. These courses seem to be offered periodically at specific times—so if you find one you are interested in, you can enter an e-mail address and wait to be notified the next time it is offered. One example of a course I found online is An Introduction to Global Health.

I recently took a Coursera course called Health for All through Primary Health Care. I was very impressed. The course was taught by Henry Perry, a professor at Johns Hopkins University in the United States. Perry has extensive experience in the field of Primary Health Care, and shares a passion for the subject that clearly goes beyond mere academics. The course included online lectures (if bandwidth were not available to view lectures, transcripts of the lectures were also available, as well as pdf versions of the PowerPoint slides). Readings (available online) and sometimes

YouTube videos were assigned in conjunction with the lectures. Each week, participants completed a 10-question multiple choice quiz. Two reflection papers were also assigned during the five-week course.

A unique aspect of Dr. Perry's course is the requirement for each participant to peer review reflections from four other randomly assigned course participants. The marking scheme was clearly outlined. Participants were from literally all over the world, so the peer review and an online discussion forum were great ways to learn from and about other participants' experiences. For this course (and most in the Coursera network, I expect), lectures were given in English and assignments were also expected to be in English.

**MOOC** ([www.mooc-list.com](http://www.mooc-list.com)) (<http://www.mooc-list.com/>) is "a complete list of massive open online courses (free courses) offered by the best universities and entities." It includes courses through a number of different initiatives, including Coursera. Course categories can be easily browsed. Two that look especially interesting and relevant for ECHO network members are Sustainability of Food Systems: A Global Life Cycle Perspective and Health for All through Primary Health Care.

**Khan Academy** ([www.khanacademy.org](http://www.khanacademy.org)) (<http://www.khanacademy.org/>) is a website where you can watch free online lessons on YouTube. Each online video is approximately 10 minutes long. Topics are weighted heavily toward science and math, but also include economics, cosmology and astronomy, and some topics from the humanities. Computer science videos are the latest Khan Academy offering. While very few of the online videos pertain to agriculture specifically, some that might be helpful to our readers are in the area of biology (e.g. photosynthesis; genetics; CAM plants [CAM stands for 'crassulacean acid metabolism'; these are plants uniquely adapted for arid conditions]), chemistry (e.g. periodic table; acids and bases) and organic chemistry. The material in the videos tends to be at the level of a high school course or first year university course.

Note: Generally, in order to participate in a course online, you will need to create an account with the respective host organization. The username and password that you create are then used to log in and access the course in which you enroll.

### **Other Online Information Sources**

**ATTRA-National Sustainable Agriculture Information Service.** From the website: "ATTRA was developed and is managed by the National Center for Appropriate Technology (NCAT) through a cooperative agreement with the United States Department of Agriculture (USDA) Rural Business Cooperative Service. ATTRA's resources include a free hotline for sustainable-agriculture producers; a free "Ask an AG Expert" service; more than 400 publications, most of which can be downloaded for free; databases; webinars; funding opportunities; and more.

"The ATTRA website home page, [www.attra.ncat.org](http://www.attra.ncat.org), now features a "Mobile" view, which automatically appears when smartphone and tablet users visit the site. Although the "Mobile" view offers the same features as the regular "Desktop" view, it's friendlier for a smartphone-size screen. Rather than the website's regular graphic layout, which is designed to be easy to navigate on a computer screen, the Mobile view is laid out in a vertical "headline" style. When users click on one of the features, more choices appear."

Though geared toward North Americans, much of the information on the ATTRA website is more broadly relevant.

**Humanity Development Library.** We have mentioned this resource before. From the website: "The Humanity Development Library is a large collection of practical information aimed at helping reduce poverty, increasing human potential, and providing a practical and useful education for all. This version, 2.0, contains 1,230 publications-books, reports, and magazines-in various areas of human development, from agricultural practice to economic policies, from water and sanitation to society and culture, from education to manufacturing, from disaster mitigation to micro-enterprises. It contains a total of 160,000 pages and 30,000 images, which if printed would weigh 340 kg and cost US\$20,000. It is available for free online at [www.nzdl.org/hdl](http://www.nzdl.org/hdl), (<http://www.nzdl.org/hdl>), and on CD-ROM at US\$2 for distribution in developing countries. The actual library software is also available free of charge.

"The objective of the Humanity Libraries Project is to provide all involved in development, well-being and basic needs with access to a complete library of around 3,000 multidisciplinary books containing practical know how and ideas. We invite many more development organizations to share their useful publications, to help distribute these libraries, and to participate in this humanitarian project.

"The editors of this collection are Human Info NGO, HumanityCD Ltd, and Participating Organizations. Contact us at Humanities Libraries Project, Oosterveldiaan 196, B-2610 Antwerp, Belgium, Tel 32-3-448.05.54, Fax 32-3-449.75.74, email [humanity@humaninfo.org](mailto:humanity@humaninfo.org)."

One real benefit of the Humanity Development Library CD-ROM is that the information can be searched and used even without access to the Internet. Information in the Humanity Development Library collection can be searched in five different ways:

- search for particular words that appear in the text by clicking the Search button
- browse documents by Title by clicking the Titles button
- browse documents by Subject by clicking the Subjects button
- browse documents by Organization by clicking the Organizations button •  
browse documents by Collage by clicking the Collage button

### **Free Online Books**

**The Online Books Page** (<http://onlinebooks.library.upenn.edu/>) lists over 1 million free books on the web. It links to ECHO's own Amaranth to Zai Holes: Ideas for Growing Food under Difficult Conditions.

**Biodiversity Heritage Library** ([www.biodiversitylibrary.org/Default.aspx](http://www.biodiversitylibrary.org/Default.aspx)) is a "consortium of natural history and botanical libraries." Most of these are older books that are in the public domain. Books can be searched for by topic, title, author, date or collection. They can be read online or downloaded in several formats (including PDF). Examples of titles include Tropical Agriculture: The Climate, Soils, Cultural Methods, Crops, Livestock, Commercial Importance and Opportunities of the Tropics and Elements of Philippine Agriculture.

**Cornell Historical Literature of Agriculture** (<http://chla.library.cornell.edu>).

Cornell's Historical Literature of Agriculture (CHLA) is a website of more than 2000 full textbooks and some journals that are well indexed and searchable, all dealing with pre-WW II agricultural methods. Examples include Iroquois [a Native North American tribe] Uses of Maize; Baking at High Altitudes; and Practical Treatise on the Potato.

**The Soil Biology Primer**, a book by Elaine Ingham, can be read on the web at [soils.usda.gov/sqi/concepts/soilbiology/soilfood\\_web.html](http://soils.usda.gov/sqi/concepts/soilbiology/soilfood_web.html). Information gleaned from the author of this important book was shared in EDN 96, in an article by Danny Blank called "A Fresh Look at Life below the