

EXO BIOLOGY

NATIONAL SPACE ADMINISTRATION (NASA)
DEFINITION OF EXO BIOLOGY: "THE STUDY OF THE
ORIGIN, EVOLUTION, AND THE DISTRIBUTION OF LIFE
IN THE UNIVERSE ."



Corbis.com

WELCOME STUDENTS AND TEACHERS . THIS
EXO BIOLOGY WEBSITE IS GEARED TO 11TH AND
12TH GRADE ADVANCED SCIENCE STUDENTS.

This site provides information about exobiology. But if you are going to talk about life outside of the confines of this big blue planet of ours, it is necessary to have a grounding in astronomy as well as biology, especially on the molecular level. To these ends, the nonfiction books and websites will offer materials that pertain to both astronomy and biology.

DISCLAIMER:

WHAT THIS SITE IS NOT--THIS WEBSITE IS NOT A COMPREHENSIVE WEBSITE THAT ADDRESSES ALL THE LITERATURE AND WEBSITES PERTAINING TO THE SUBJECT OF EXO BIOLOGY.

WHAT THIS WEBSITE IS--A SITE BUILT IN RESPONSE TO A GRADUATE CLASS IN YOUNG ADULT LIBRARIANSHIP AT SAN JOSE STATE UNIVERSITY .

**NOW, GO AHEAD AND ENJOY
THIS SITE**

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SCIENCE WEBSITES

NASA

The exobiology branch of the National Space Administration (NASA) sponsors this comprehensive and informative website that includes a detailed definition of exobiology, the latest scientific data and papers that support the topic, and information about NASA's future projects.

SETI

An interesting, scientific, and yet slightly quirky website that is sponsored by the Search for Extraterrestrial Life (SETI) Online Institute. The SETI project is a scientific search for technologically based civilizations that may exist in the universe. This website details the different SETI programs and includes their links. The science behind the SETI project is legitimate--many of the projects are funded by NASA Ames Research Center, and the Jet Propulsion Laboratory (JPL).

PLANETARY SOCIETY

This is the website for The Planetary Society (founded in 1980 by a group of scientists, including Carl Sagan). The information provided by this site is based in scientific fact, and the information is thought provoking. The Planetary Society is a non-profit, non-governmental enterprise that "encourage(s) the exploration of our solar system and the search for extraterrestrial life." The Planetary Society's collaborators include Harvard University and the University of California Berkeley. This site also provides past articles from the Society's publication "Planetary Report", and two online magazines: "The Mars Underground News," and The Bioastronomy News." The site also make a learning center link available to teachers.

[DR.MILLER INTERVIEW](#)

This Access Excellence Newsmakers site provides the transcript of an interview with Dr. Stanley L. Miller, a professor at the University of California San Diego. Dr. Miller's work in exobiology is extensive. The interview takes the reader into the research trenches with Dr. Miller to examine the topic of exobiology. The article discusses the the current direction of the field, the importance of the research, and the biochemistry that is at the heart of "life." Incidentally, Access Excellence was developed by Genetech. It was used to link high school science teacher with other professionals, and resourecs within the biological community. Access Excellence was recently "donated" by Genetech to the National Health Museum.

[ARC LINKS](#)

This webpage,created by NASA ARC (Ames Research Center) scientist Jason Dworkin, is loaded with links.This is an absolutely fantastic page. It provides links (mostly hard science, very little UFO phenomom stuff) to everything from exobiology to astrophysics. The only problem with this page is that you can spend hours being sucked up into the computer traveling from one link to another.

[NSCORT](#)

This website is operated by NASA Specialized Center of Research and Training (NSCORT). This southern California based center is composed of three university/research institutions whose main research is in the field of exobiology (one of the three is the University of California San Diego, where Dr. Stanley Miller works--he is part of NSCORT). This site provides information on the research being performed, the scientist performing it, and some good links. Also available is a link to teaching plan for a high school exobiology module.

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PUBLIC BROADCASTING SERVICE (PBS) LINKS

[HUNT FOR ALIEN WORLDS](#)

This excellent multi-linked site examines the search for life in the universe. It includes beautiful color photographs (credited to NASA) of the planets in our solar system. The site also includes hyperlinks to maps for backyard stargazing, and to a well-written site entitled "All Alone? (Or Not)" written by Massachusetts Institute of Technology professor, Dr. Philip Morrison.

[LIFE BEYOND EARTH](#)

In Life Beyond Earth, the Public Broadcast Service once again offers great graphics, great science, and great creativity. This site (which also features information on a film of the same name by Timothy Ferris) examines the search for extraterrestrial life. It also features a discussion and interactive activity about which planets in our solar system are habitable, and why. Featured are interviews with such renowned scientists as Freeman Dyson and Stephen Jay Gould about the possibility of the existence of extraterrestrial life. The controversial subject of alien contact and abduction is examined in the "Is Anybody Listening" hyperlink; there are also hyperlinks that include UFO sites.

DEEPSPACE

This excellent PBS site is filled with colorful bold graphics that entice you to enter and look around. And as typical with PBS, the inside is just as good as the glitzy outside. This site, which is geared toward astronomy, not exobiology, is filled with good hard science information. It offers an interview with a SETI astronomer, and a radio telescope astrophysicist about very cool space objects such as black holes, worm holes, and white holes. There is also an interactive timeline that stretches from the big bang thru the formation of the solar system. And for teachers, as well as students who want to know how all the behind the scenes class room activities get planned, there is a classroom activities hyperlink.

KIDNAPPED BY UFO's

This site is the oddball site in this collection. It is not, based upon NASA's definition, and exobiology site, but nonetheless it is interesting. This site, subtitled "Exploring the Alien Abduction Phenomenon," does just that in great detail. Two opposing viewpoints are pitted against each other: skeptics and believers. To add spice to the mix one of the individuals on the believers panel is Harvard University psychiatrist, Dr. John Mack. Note, that this PBS website carries the warning that it contains disturbing material.

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NONFICTION*

Strangers in the Night. By David E. Fisher and Marshall Jon Fisher. Counterpoint, 1998. 348 pages. \$25.00.

This title provides interesting and valuable information for both students and educators interested in opening a dialogue about the topic of exobiology. The father and son author team (David E. Fisher is a professor of nuclear physics at the University of Miami, and Marshall Jon Fisher is a science writer) examines the topic of extraterrestrial life from its early historical references to modern sightings and hoaxes.

Rare Earth. By Peter Douglas and Donald Brownlee. Copernicus Books, 2000. 336 pages. \$27.50.

For many years now, some scientist have postulated that it is possible for life to exist throughout the universe. *Rare Earth* is the name of Peter Douglas and Donald Brownlee's (Douglas is paleontologist, and Brownlee is an astronomer) hypothesis that while microbial life may

exist in the universe, the larger, more complex forms of life are specific to earth.

Here Be Dragons: The Scientific Quest for Extraterrestrial Life. By David Koerner and Simon LeVAY. Oxford University Press, 2000. 264 pages. \$27.50.

On the surface, *Here Be Dragons* appears to cover similar territory as *Strangers in the Night*. Both books address the historical and cultural aspects of the search for extraterrestrial life. The comparison ends there. This is an interesting book, not just because it is loaded with excellent information of the biology of life (it is one of the books that gives a lot of information of the biochemical aspects of life), but the style in which the book is written does a lot to recommend it: it is chatty, engaging, and also funny and ironic.

New Astronomer: The Practical Guide to the Skills and Techniques of Skywatching. By Carole Stotts and Aimee Gallagher. DK Publishing, 1999. 144 pages. \$24.00.

This book features beautiful color photographs detailing the how-to's of "skywatching." This book is not a text book on astronomy, rather it is amateurs guide on a voyage among the stars that shows the reader how to find what's up there (what planet is that? Or rather what is that?). How do you think all those astronomers got started? They were in their back yard with a telescope.

Biology. By Neil A. Campbell. Prentice Hall, 1999. \$87.00.

This is a biology text book, which is principally used at the college level. However, for the more advanced science student it may prove to be very useful. The illustrations are excellent and go a long way in facilitating the readers understand of complex information. The writing is clear and concise, and the sections on macromolecules, and membrane structure and function are very informative.

After the First Three Minutes: The Story of Our Universe. By T. Padmanabhan. Cambridge University Press, 1998. 230 pages. \$21.95

This well written, concise astronomy book examines the intricacy of how the universe came into being. Although this title is geared to the nonscientist, it does provide some complex information that does require slogging through some heavy duty information, therefore it maybe more useful to the advanced student, or those with patience.

*Note, these titles are all adult nonfiction.

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***UNIDENTIFIED
FLYING OBJECT
(UFO)**

So far this website has stayed on the straight science path, but I know what really gets every one going is the UFO phenomenon. So, here are some books--they range from "interesting" to "no way."

BOOKS

Alien Contact (True-life encounters series). By John Spencer and Anne Spencer. TV Books, 1999. 300 pages. \$12.95.

The author's are supposedly researchers who have specialized in the paranormal. This book is chock full of alien and human contact.

Alien Contact: The First Fifty Years. By Jenny Randles. Sterling Publications, 1997. \$13.95.

Lots of UFO's. Abduction stories. Human alien contact stories. This author also wrote Star Children: The True Story of Alien Offspring Among Us.

The Day After Roswell. By Philip J. Corso and William J. Birnes. Pocket Books, 1998. 371 pages. \$7.00.

Colonel (Ret.) Philip J. Corso (now deceased) was a member of President Eisenhower's National Security Council. This book looks at, thrashes out, and generally scrutinizes lots and lots of government documents (many recently released by the Freedom of Information Act) that help tell the story of what happened over fifty years ago in Roswell, New Mexico.

UFO's, JFK, and Elvis: Conspiracies you don't have to be crazy top believe. By Richard Belzer. Pocket Books, .228 pages. \$24.00.

Actor/comedian Richard Belzer (he played John Munch on the television series *Homocide: Life on the Streets*) is also a conspiracy theorist. He sheds some light on those glow-in-the-dark conspiracies. He also provides some documentation to back up his assertions.

At the Threshold: .By Charles Emmons. Granite Publications, 1999. 282 pages. \$17.95.

This is a book about UFO's told from a rational, scientific perspective. The book examines how a handfull of scientist investigate the phenomenon of UFO's. The human alien contact stories are also brought under scientific scrutiny.

AND IN ADDITION...

Here is one website that addresses all the material on this page, and more.. It is the website for the famous paranormal debunking magazine Skeptical Inquirer.

[THE SKEPTICAL INQUIRER](#)

*Note, in no way is this a personal endorsement of any of the materials found on this page. This page is purely for entertainment purposes only.

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