

COLORADO COLLEGE - OFFICE OF THE REGISTRAR

APPLICATION FOR ADMISSION TO THE MAJOR IN LIBERAL ARTS & SCIENCES

I wish to major in Liberal Arts & Sciences. I understand that my courses of study within this major must be supported and approved by two faculty sponsors from two different departments, one of whom is my principal sponsor and academic adviser. The project or thesis must be evaluated by both faculty sponsors. However, the Principal Sponsor/Adviser works closely with the student in conceptualizing and completing the thesis and turns in the final grade. The Associate Sponsor acts as a reader of the final draft of the thesis and recommends a final grade to the Principal Sponsor. The approval of the Dean's Advisory Committee is necessary for final acceptance of my plan of study within the major. In addition, I understand that, to make changes in the approved plan, I must have the agreement of each faculty sponsor. A letter in support of the proposed changes should be sent by the Principal Sponsor to the Assistant Dean of the College and the Registrar.

(Please submit 7 copies of this application and your Liberal Arts & Sciences proposal to the Advisory Committee no later than the second semester of your sophomore year. The Advisory Committee will not consider your application until the completed proposal - including faculty recommendations - has been received.)

Name (Please Print) \_\_\_\_\_ ID Number \_\_\_\_\_

Worner Box \_\_\_\_\_ Phone \_\_\_\_\_ Student Signature \_\_\_\_\_

Current number of units earned \_\_\_\_\_ Expected graduation date 5-97

Address \_\_\_\_\_  
Street City State CO Zip 80903

Principal Sponsor/Adviser Carolyn Glaubenshlee - Biology

Associate Sponsor \_\_\_\_\_ Dept \_\_\_\_\_

Description of the field of concentration (TITLE) Life Sciences Major

This form must be signed by two faculty members from different Departments who are full-time or adjunct faculty members who will be here (to the best of their knowledge) while the student is completing the major. Sponsors should also forward their letter of recommendation once they have signed this form. Return this form to the Office of the Associate Dean of the College, along with a description of the major and the required courses (including a description of the thesis topic). The Associate Dean will notify both student and sponsors of acceptance or rejection of the proposal, and the outline of the proposed major will be approved by both sponsors and sent to the Registrar. (Any change of adviser must be approved by the Dean's Advisory Committee, upon submission of a letter from the adviser.)

Principal Faculty Sponsor Carolyn S. Glaubenshlee

Associate Faculty Sponsor Paul Mizou

To the Sponsors: Your signature indicates approval of the proposed major. Please comment on this proposal in a brief letter to the Advisory Committee under separate cover. Please indicate your familiarity with the student's past academic performance and comment on his/her ability to carry out a program which requires an unusual amount of independence and responsibility. The Principal Faculty Sponsor/Adviser agrees to be the student's academic adviser and to work closely with the student in composing the major, conceptualizing, revising and completing the thesis.



L.A.S. Proposal  
Life Sciences Major

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4-01-96

LAS Proposal  
Life Sciences Major

This Proposal outlines a major concentrating on life systems and the manner in which they interact to form the web of all we know. As a student of the liberal arts, I feel that this major represents the best of the sciences as I have begun to understand them, focusing on not only one principal of thought, but on how many scientific principles interact. Observing the changes of each life and planetary system and how they impact each other, I feel that I can gain a better understanding of the power of this planet and consequently better utilize its resources. Through this curriculum, I have been able to establish a solid foundation for my continuing education. Upon graduation from Colorado College, I plan to continue studying at either Bastyr University or the National College of Naturopathic Medicine. Naturopathic medicine focuses on utilizing all aspects of the natural world and individual healing power to heal the body. The strong reliance of natural medicine on the planet as a source of healing has helped me realize the necessity behind a varied pre-graduate major. The following list of courses make up what I determine to be essential components of a strong understanding of this earth and the life systems on it. Comprehensively, these courses cover many different

topics, however, each further demonstrates how all this information interrelates and combines to produce a well rounded curriculum.

#### Required Courses Completed as of 4-96

Mathematics: 127- Calculus II This course helps expand my mathematical background and aids in the calculations encountered in chemistry and physics classes. A significant calculus background is necessary to continue in any science.

Biology: 109- Vertebrate Zoology (transfer credit) This course introduces the student to life forms similar to ourselves. The introduction this class provides helps the student to begin to understand human origin and life

Sociology: 235- Sociology of the Family This course adds an important dimension to this major by focusing on social aspects of society which are extremely crucial to our life systems. In order to function we must interact with people and one of the most common interactions we will encounter is with a family.

Geology: 201- Mineralogy and Crystallography This course teaches the student about rocks and minerals and their chemical makeup. By understanding the chemistry of rocks and how and where they are produced in the earth, it is easier to understand the earth as a whole.  
202- Introduction to Petrology - This course further aids what was learned in Mineralogy and Crystallography by enhancing the background information I have on rocks and earth stratigraphy.

305- Stratigraphy and Sedimentation - This course deals with an entirely different rock type, sedimentary rocks. These are prevalent often mineral rich deposits found throughout the world.

#### Required Courses To Be Completed in 1996-97 Year:

Chemistry: 250 & 251- Organic Chemistry I&II - Organic Chemistry deals with the essential things found in all life and therefore are an expected part of this major. Herbs, the main healing source used in natural medicine is a natural product and therefore will be best understood chemically through organic means.

Biology: 202- Field Botany - This course will help me to learn how to identify plants and their structures which is important for using and collecting herbs. (This course may be replaced by genetics BY 351)

205- Anatomy and Physiology - This course will expand my knowledge of the human body, its systems and how they work which is a necessity for anyone going into any human health field.

210- Cellular Biology - This course defines the smaller tenants of life and how they work to produce it. It also prepares the student for the upper level Biology classes needed for further study.

360- Microbiology- This course helps to expand the general knowledge of most lower level Biology classes by enhancing a more specific aspect of life.

General Studies 400-401- One block will be taken as a thesis block in order to write a paper on research to be done this summer. The topic involves natural medicine and will be discussed later in this proposal.

#### Suggested Accompanying Courses:

General Studies: 320- Independent Study - Studies In Naturopathic Medicine. This study focuses on how Naturopaths treat their patients, including making herbal remedies, methods of diagnosis and philosophy behind health.

Philosophy: At least one unit

Psychology: At least one unit- This will strongly aid the understanding of the complete person. Health is not only a matter of the body, but also one of the spirit and the mind which are best studied through psychology.

English and Composition courses- These help with the formulation of ideas into writing and the ability to explain and record cognitive observations through writing.

Physics: 141 or 142- Physics explains much of our natural world and is therefore necessary to an understanding thereof.

The above courses represent what I feel will help me the most in my goal to continue studying health and natural sciences. In order to develop an understanding of how the natural world contributes to the health of the body, I must be able to understand the natural world. Combining Biological sciences with Geological sciences will allow me to not only understand how plants and ecological systems thrive but in addition how they grow in the geological atmospheres provided. This knowledge in particular will help me to further understand herbs as plants and the environments that they grow in.

Herbs consist of a large portion of my primary interest, they compose much of what is important and used in Naturopathic medicine. However, I do not think that simply knowing how an herb works is sufficient when you are using them as healing agents. In order to fully understand the power of any biological product, it is also necessary to understand the environment in which it is found. Geology enhances this knowledge by providing a baseline understanding of rocks and minerals. Having the ability to determine soil and rock composition of any horticultural system, increases the understanding a person can have about the things growing there. Plants will contain the same mineral nutrients as the material that they grow in. The more nutrient rich the soil, often, the more potent the plant. In addition, being able to recognize different

greatly aid me in my study of herbs, because the interaction of herbs with the body is similar to many other chemical reactions. Limited understanding of general chemistry can be extremely dangerous if not fatal when using herbs. Another essential tenant of using herbs is understanding the body and its systems, this is how Anatomy and Physiology will greatly help me further my studies.

The last aspect of this program to be completed by second semester of next year is a thesis proposal. Choosing a topic that demonstrates what I have learned and how I have managed to utilize that information has been interesting. Venturing into natural medicine opens many doors of thought and prompts many exciting questions. Presently, the issue that interests me the most is how Natural and Conventional medicine can work together to provide a dynamic system of health care that will address total and complete health for each individual. There is much division on this issue, many MD's do not believe that natural medicine works, or should even be trusted, while others have begun to embrace it and incorporate it into their practice. I propose studying and comparing the success rates, side affects, patient satisfaction and doctor satisfaction between using natural and conventional medicine for some common ailments. I have not decided upon the specific ailments to use as of yet, but one possibility is Cervical Dysplasia, a condition affecting 2 of 6

women in this country in which cells of the cervix mutate in a pre-cancerous manner. This condition is the predecessor to cervical cancer, a leading killer of women in this country. To study this, I would interview both MD's and ND's about successful treatment methods, evaluation of this condition and how responsive patients appear to be to each. This data would be primarily collected from interviews and observation where available. Other possibilities include the common cold, muscle performance, and nutritional problems. Any of the above will be used as discussed, to determine what benefits are there to using natural healing methods and how can both conventional and natural medicine help each other to heal a patient?

This program connects what I feel are the most essential aspects of the life sciences as they apply to what I need to know. I feel that studying natural healing methods necessitates having a fairly good understanding of the natural world. Without this knowledge, I do not think that it is possible to fully utilize the power of the planet. This is why I have designed this major as I have, comprehensively, this is the most well rounded life science major I could compile. Unfortunately, when dealing with an interest in more than one field of science, it is much harder to settle upon just one or even to compile a program that utilizes all of them. I began with an interest in the geological sciences, however, as I

types of rock areas that certain plants are generally found in can add to the ease by which they can be found and collected. Consequently, by utilizing aspects of the above information, I will be better equipped to work with and gather medicinal plants.

As an aid to my growing understanding of where to find herbs, I have been expanding my knowledge of herbal uses and how Naturopaths use these remedies by working with Ernie Blue, a Naturopath practicing in Manitou Springs. As part of this study, I have been learning how to make herbal remedies and expanding my understanding of what herbs are used for what particular problems. He has also introduced me to the concept of Iridology, the usage of images of the Iris to aid in determining what steps a person should take to heal themselves. By looking at the images, it is possible to see if a person has too many toxins in their body, how their heart is doing, the health of their spine, intestinal tract, and many other aspects of the body.

However, none of these demonstrations would be worthwhile if not supplemented by additional knowledge of Chemistry, Physics, and most importantly Biology. The combination of these three topics make up the essential building blocks of matter and life. No scientist can even attempt to study life without at least a basic knowledge of the essential tenants of each of these sciences. Chemistry, especially the organic will

delved further into these classes, I decided I wanted more. Therefore, I expanded into the biological sciences where I could learn about life and living organisms. Eventually, I became aware that all of these are wonderful, but something was missing, and that was people, I want to be interactive with all types of people and be able to utilize my growing interest in the natural health sciences. Consequently, I arrived at my decision to study Naturopathic medicine. Naturopathy combines the theories, ideas, and sciences that I love the most into one area of study. Following three years of study and deliberation I have finally found the major that suits me the best. This program allows me to go where I want to go after graduating from The Colorado College. This major represents my ideals of life and how each part of our environment from the soil to the trees interact to provide us with a better life.

# PREPARING FOR A NATUROPATHIC EDUCATION

National College is committed to attracting high caliber students who have excellent potential as physicians and healers. This means that successful candidates will not only have completed the necessary prerequisite course work, but will demonstrate outstanding moral character, maturity, and commitment to naturopathic medicine. In keeping with naturopathic philosophy, prerequisite course work reflects a balance between science and the humanities. The College recommends that prospective students pursue other special areas of interest as well. This will help develop a broad base of knowledge and experience. Though qualified individuals may gain acceptance with three years of undergraduate credit, a bachelor's degree is strongly recommended. Beginning with the 1996-97 academic year, a bachelor's degree will be required for admission.

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## PREREQUISITES

<b>General</b>	135	quarter credits or 90 semester credits (approximately three years) of undergraduate study at a college or university accredited by one of the recognized regional accrediting associations or approved by the Oregon Office of Educational Policy and Planning. One third of this work (30 semester credits) must be in upper division credits, i.e., 300 and 400 level courses.
<b>Chemistry and Physics</b>	24	quarter credits or 16 semester credits including at least one semester (or two quarters) of pre-medical organic chemistry, and enough of both general chemistry and physics to total the remainder of the required hours. One course in physics is required. All chemistry courses must have labs. Beginning with the 1996-97 academic year, the chemistry, organic chemistry and physics course work must have been taken within no more than 7 years from the date of admission to the College.
<b>Biology</b>	12	quarter credits or 8 semester credits with lab. Anatomy, microbiology, botany, physiology, and zoology are considered biological sciences.
<b>Social Science</b>	9	quarter credits or 6 semester credits including at least one course in psychology. Political science, economics, sociology, psychology, and anthropology are considered social sciences.
<b>Humanities</b>	9	quarter credits or 6 semester credits. Philosophy, fine arts, history, literature, languages, religious studies, women's studies, and performing arts are considered humanities.
<b>English</b>	9	quarter credits or 6 semester credits of composition and rhetoric, if the applicant does not have a bachelor's degree. (To qualify, course titles must indicate an emphasis on writing or speech. Literature courses do not meet this requirement.)

# Admissions

## Naturopathic Medicine

In selecting applicants for admission, the Bastyr University Naturopathic Medicine Program will emphasize those qualities of motivation, intellect, and character essential to be a physician. Applicants will be considered on the basis of academic performance, maturity and demonstrated humanitarian qualities. Awareness of health care delivery systems, and of natural medicine in particular, is desirable.

The following course work must be completed to prepare for the study of naturopathic medicine. All science and math course work must be completed by the time of matriculation into the program.

1. **Quantitative skills: 6 semester/ 8 quarter hours**, which should include a college level algebra, or pre-calculus, course and preparation in basic statistics and probability.
2. **Chemistry: 12 semester/ 18 quarter hours**, which can be satisfied by taking any combination of inorganic, organic, biochemistry, or molecular biology courses, with appropriate laboratory work. It is suggested that, at a minimum, the prospective student take a two term sequence in organic chemistry.
3. **Biology: 8 semester/ 12 quarter hours**, which must include work in cellular biology, or microbiology, and genetics. Appropriate laboratory work must be included. Courses in botany, anatomy and physiology are recommended.
4. **Physics: 4 semester / 5 quarter hours**
5. **Psychology: 6 semester /8 quarter hours**
6. **English and humanities: 12 semester/ 18 quarter hours**. Courses in biomedical ethics, philosophy of science, public speaking and English composition are recommended.

Applicants are expected to have a basic understanding of personal computing and information technologies. Completion of a minimum of three years of course work (90 semester credits / 135 quarter credits) at an accredited college or university is the minimum required for matriculation. **No less than one-third of that course work must be in upper division (i.e. junior or senior level).** While an undergraduate degree is not required, in recent years, over 80% of entrants have earned bachelor's degrees. No specific major is advised. A broad background in the humanities and liberal arts is encouraged.