CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

LSC Use Only	
Number	LS-108
Action	Approved
Date	6/21/89

UWUCC Use Only	
Number	8
Action	
Date	

I. TITLE/AUTHOR OF CHANGE
COURSE/PROGRAM TITLE BI 160 Biology of Aging
DEPARTMENT Biology
CONTACT PERSON Dr. Harold J. Grau (x4898)

II. THIS COURSE IS BEING PROPOSED FOR:
___ Course Approval Only
_X_ Course Approval and Liberal Studies Approval
___ Liberal Studies Approval only (course previously has been approved by the University Senate)

III. APPROVALS

Richard H. Kesner
Department Curriculum Committee

Walter W. Gallatti
Department Chairperson

College Curriculum Committee

College Dean*

Director of Liberal Studies
(where applicable)

Provost
(where applicable)

*College Dean must consult with Provost before approving curriculum changes. Approval by College Dean indicates that the proposed change is consistent with long range planning documents, that all requests for resources made as part of the proposal can be met, and that the proposal has the support of the university administration.

IV. TIMETABLE

Date Submitted to LSC _____ to UWUCC _____

Semester/Year to be implemented Sp 1990

Date to be published in Catalog 1990

Revised 5/88

[Attach remaining parts of proposal to this form.]

LIBERAL STUDIES COURSE APPROVAL FORM

About this form: Use this form only if you wish to have a course included for Liberal Studies credit. The form is intended to assist you in developing your course to meet the university's Criteria for Liberal Studies, and to arrange your proposal in a standard order for consideration by the LSC and the UWUCC. If you have questions, contact the Liberal Studies Office, 353 Sutton Hall; telephone, 357-5715.

Do not use this form for technical, professional, or pre-professional courses or for remedial courses, none of which is eligible for Liberal Studies. **Do not** use this form for sections of the synthesis course or for writing-intensive sections; different forms will be available for those.

PART I. BASIC INFORMATION

A. For which category(ies) are you proposing the course? Check all that apply.

LEARNING SKILLS

____ First English Composition Course
____ Second English Composition Course
____ Mathematics

KNOWLEDGE AREAS

____ Humanities: History
____ Humanities: Philosophy/Religious Studies
____ Humanities: Literature
____ Fine Arts
____ Natural Sciences: Laboratory Course
X Natural Sciences: Non-laboratory Course
____ Social Sciences
____ Health and Wellness
____ Non-Western Cultures
____ Liberal Studies Elective

B. Are you requesting regular or provisional approval for this course?

X **Regular** ____ **Provisional** (limitations apply, see instructions)

C. During the transition from General Education to Liberal Studies, should this course be listed as an approved substitute for a current General Education course, thus allowing it to meet any remaining General Education needs? ____ **yes** X **no**

If so, which General Education course(s)? _____

PART II. WHICH LIBERAL STUDIES GOALS WILL YOUR COURSE MEET? Check all that apply and attach an explanation.

All Liberal Studies courses must contribute to at least one of these goals; most will meet more than one. As you check them off, please indicate whether you consider them to be primary or secondary goals of the course. [For example, a history course might assume "historical consciousness" and "acquiring a body of knowledge" as its primary goals, but it might also enhance inquiry skills or literacy or library skills.] Keep in mind that no single course is expected to shoulder all by itself the responsibility for meeting these goals; our work is supported and enhanced by that of our colleagues teaching other courses.

	Primary	Secondary
A. Intellectual Skills and Modes of Thinking:		
1. Inquiry, abstract logical thinking, critical analysis, synthesis, decision making, and other aspects of the critical process.	X	
2. Literacy--writing, reading, speaking, listening		X
3. Understanding numerical data		
4. Historical consciousness		X
5. Scientific inquiry	X	
6. Values (ethical mode of thinking or application of ethical perception)		X
7. Aesthetic mode of thinking		
B. Acquiring a Body of Knowledge or Understanding Essential to an Educated Person		X
C. Understanding the Physical Nature of Human Beings	X	
D. Certain Collateral Skills:		
1. Use of the library		X
2. Use of computing technology		

PART III. DOES YOUR COURSE MEET THE GENERAL CRITERIA FOR LIBERAL STUDIES? Please attach answers to these questions.

A. If this is a multiple-section, multiple-instructor course, there should be a basic equivalency (though not necessarily uniformity) among the sections in such things as objectives, content, assignments, and evaluation. Note: this should not be interpreted to mean that all professors must make the same assignments or teach the same way; departments are encouraged to develop their courses to allow the flexibility which contributes to imaginative, committed teaching and capitalizes on the streangths of individual faculty.

What are the strategies that your department will use to assure that basic equivalency exists? Examples might be the establishment of departmental guidelines, assignment of repsonsibility to a coordinating committee, exchange and discussion of individual instructor syllabi, periodic meetings among instructors, etc.

B. Liberal Studies courses must include the perspectives and contributions of ethnic and racial minorities and of women wherever appropriate to the subject matter. **If your attached syllabus does not make explicit that the course meets this criterion, please append an explanation of how it will.**

Where is this addressed.

C. Liberal Studies courses must require the reading and use by students of at least one, but preferably more, substantial works of fiction or nonfiction (as distinguished from textbooks, anthologies, workbooks, or manuals). **Your attached syllabus must make explicit that the course meets this criterion.**

Time, Cells & Aging? Is this a textbook.

[The only exception is for courses whose primary purpose is the development of higher level quantitative skills; such courses are encouraged to include such reading, but are not expected to do so at the expense of other course objectives. **If you are exercising this exception, please justify here.**]

D. If this is an introductory course intended for a general student audience, it should be designed to reflect the reality that it may well be the only formal college instruction these students will have in that discipline, instead of being designed as the first course in a major sequence. That is, it should introduce the discipline to students rather than introduce students into the discipline. **If this is such an introductory course, how is it different from what is provided for beginning majors?**

E. The Liberal Studies Criteria indicate six ways in which all courses should contribute to students' abilities. **To which of the six will your course contribute? Check all that apply and attach an explanation.**

✓ 1. Confront the major ethical issues which pertain to the subject matter; realize that although "suspended judgment" is a necessity of intellectual inquiry, one cannot live forever in suspension; and make ethical choices and take responsibility for them.

✓ 2. Define and analyze problems, frame questions, evaluate available solutions, and make choices

✓ 3. Communicate knowledge and exchange ideas by various forms of expression, in most cases writing and speaking.

✓ 4. Recognize creativity and engage in creative thinking.

✓ 5. Continue learning even after the completion of their formal education.

✓ 6. Recognize relationships between what is being studied and current issues, thoughts, institutions, and/or events.

PART IV. DOES YOUR COURSE MEET THE CRITERIA FOR THE CURRICULUM CATEGORY IN WHICH IT IS TO BE LISTED?

Each curriculum category has its own set of specific criteria in addition to those generally applicable. The LSC provides copies of these criteria arranged in a convenient, check-list format which you can mark off appropriately and include with your proposal. **The attached syllabus should indicate how your course meets each criterion you check. If it does not do so explicitly, please attach an explanation.**

CHECK LIST -- NATURAL SCIENCES (Non-laboratory)

Knowledge Area Criteria which the course must meet:

X Treat concepts, themes, and events in sufficient depth to enable students to appreciate the complexity, history, and current implications of what is being studied; and not be merely cursory coverages of lists of topics.

X Suggest the major intellectual questions/problems which interest practitioners of a discipline and explore critically the important theories and principles presented by the discipline.

X Allow students to understand and apply the methods of inquiry and vocabulary commonly used in the discipline.

X Encourage students to use and enhance, wherever possible, the composition and mathematics skills built in the Skill Areas of Liberal Studies.

Natural Science Criteria which the course must meet:

X Examine a body of knowledge of natural science that will contribute to an understanding of the natural world.

X Provide an understanding of the development of natural science theories and their modification.

X Teach students to formulate and test hypotheses.

X Provide an understanding of some of the "great moments" in the history of natural science and the individuals, including women and minorities, responsible for them.

Additional Natural Science Criteria which the course should meet:

X Encourage an appreciation of the complex interrelationship of natural science with the life of the individual.

X Develop in students the abilities necessary to cope with the consequences of natural science in the modern world.

X Develop an inquiring attitude consistent with the tenets of natural science, an attitude that is willing to expose fallacy on the basis of reason, that demands evidence for scientific assertions, and yet is tolerant of hypotheses in the absence of contradictory evidence.

Biology of Aging

Part II.

A.

1. The proposed course will deal with a host of scientific concepts and issues, and as such will require that the student learn to assimilate and organize a variety of facts while generating new understanding about the subject. The focus of the material in the course is the application of some fundamental biological concepts to a particular situation, that of the aging process.
2. The intent of this course is not necessarily the development of literacy skills, but will require the students to read and understand to some degree the scientific literature on the subject; the students will also be required to write a paper on some topic about which they have independently reviewed the literature.
4. Historical conciousness will be a secondary feature of this course in that many of the former theories of aging will be discussed, including the role of the prevailing wisdom during the time that these theories were presented.
5. As suggested earlier in item 1, this course is a science course, and as such has as a primary goal the development of scientific inquiry skills. The students will be given some amount of information as well as an understanding of how this information is obtained and evaluated in a scientific manner.
6. There are many current societal issues that involve the aged, such as medical care and allocation of limited resources, standards for convalescent care, etc. Understanding of the biological aspects of aging can play a role in the decisions made about these issues, and thus the ethical implications of such information will be discussed when appropriate.

No reading list is provided.

B. Everyone is faced with the process of aging, and an increased understanding of what happens in the body during this process should help the individual better cope with these changes, maximize the positive aspects and minimize the negative aspects of aging, and pass on some of this understanding to others.

Does not address ethnic, minority & gender issues. See III. B.

C. The principle content of this course is on the changes that occur in humans during aging, and thus neccesitates some degree of understanding of the physical nature of humans.

D.

1. Use of the library will be necessary for students to complete some reading assignments, as well as the written paper mentioned above in item A.2.

Biology of Aging

Part III.

A. Not applicable. At this time, it is not anticipated that anyone other than the proposer will teach the course, or that in the future more than one section of the course will be offered at any time.

B. Science is generally 'blind' to the gender or race of its contributors, and the issues that will be discussed in this course apply to humans as a whole. However, there will be certain opportunities in the course to discuss the particular impact of the aging process in women, such as during discussions of the effects of aging on the endocrine systems, reproductive processes, menopause, mineral balance, and differential cognitive abilities. Additionally, the instructor will consciously avoid any gender bias in lectures and discussion, or in the wording of assignments, test questions, etc.. Possible differential effects of ethnic heritage on aging phenomena and processes will be discussed in those instances where such information is available.

See next page for updated III. B.

C. As mentioned in part II of this document, the students will be required to read various supplementary materials both for class participation and for the successful completion of the written paper. In addition, students will be required to read Strehler's "Time, cells, and aging" (see attachment F), or a similarly suitable book (if a more appropriate one becomes available or known to the instructor), and incorporate the material from this book into the discussion section of the written paper.

Reading list includes only books in library - what about journal articles.

D. Beginning biology majors are introduced into the discipline with courses in which the emphasis is divided among the dissemination of content and the principles of scientific thinking, and in which generally the depth of coverage is much greater than that found in a non-majors offering. This course will place a much greater emphasis on content, with sufficient depth to allow adequate understanding and application, but always relating to the interests of the students in applying this knowledge to an understanding of the human condition. In other words, whereas in a majors course one would present the details of the scientific research, possibly assuming a certain facility with such related disciplines as chemistry, such that the student could foreseeably develop an interest in pursuing such research (ie, presenting more of the 'nuts-and-bolts, nitty-gritty'), in this non-majors course more of the 'bottom line' information will be directly presented. This is not to say that the students will be shielded from the mechanics of the scientific process, or not be

Biology of Aging

Part III.

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B. Science is generally 'blind' to the gender or race of its contributors, and the issues that will be discussed in this course apply to humans as a whole. However, the instructor will identify the contributions of women and minorities to the field of aging research, as well as related disciplines, in those cases where such individuals can be identified. Also, there will be certain opportunities in the course to discuss the particular impact of the aging process in women, such as during discussions of the effects of aging on the endocrine systems, reproductive processes, menopause, mineral balance, and differential cognitive abilities. Additionally, the instructor will consciously avoid any gender and ethnic bias in lectures and discussion, or in the wording of assignments, test questions, etc.. Possible differential effects of ethnic heritage on aging phenomena and processes will be discussed in those instances where such information is available.

gender/ethnic issues

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required to think in an independent scientific manner; it is more a matter of degree of emphasis that separates the two types of courses. By making the course 'relevant' to the students' interests (and the course is designed primarily for students in the Gerontology Certification Program), the impact of biological science on their lives should become readily evident, illustrating to them the knowledge available from this discipline.

E.

1. As mentioned in item II.A.6., discussion of the aged unavoidably includes discussion of a number of ethical issues. Students will have to decide for themselves what and how the biological realities that are relevant to these issues are to be applied in their personal lives, as well as to the influencing of public policy.

2. Throughout the course the students will be given some basic information about the workings of the human body, and will always be asked (or asking) how these processes are influenced by aging. Hopefully, they will eventually be able to determine or predict what features of human biology are more susceptible to aging, what the possibilities for retarding this process are, and be able to evaluate to some degree which theories or possibilities are the best or most likely answers. By requiring the students to read some supplementary scientific literature, the students will have to apply new information to an established knowledge base.

3. Students will be required to write an paper on some topic that they have independently reviewed. Class participation in discussions will also be encouraged and expected.

4. Creative thinking will be encouraged and recognized during the completion of the independent written paper mentioned above, in that the student must select an issue in the biology of aging and apply the available information to a coherent presentation of that issue. Creativity will also be encouraged in the process of evaluating the various theories presented in class, and in the prediction of which features of human biology are most susceptible to aging, as mentioned above in item 2.

5. It is hoped that the content of this course, as well as the presentation to some degree of the scientific method, will equip the student with the capacity to continue assimilating new information in the field, and evaluate this information with respect to their formal knowledge base. By learning how to ask the right questions, and how to find the answers, the student will have the mechanism available to continue the learning process.

6. By including discussion of the ethical implications of the information presented in class, as mentioned earlier, the relationships between the content of the course information and the relevant societal issues should be clear to the students.

Biology of Aging

I. New course - BI 160 Biology of Aging
Department of Biology
Harold J. Grau

II. Approvals:

Department Curriculum Committee Michael H. Kesner

Department Chairperson Walter W. Gallati

College Curriculum Committee

College Dean

Director of Liberal Studies

Signatures missing

III. Timetable

This course is primarily designed for the Gerontology Certification Program, and thus it is hoped that approval of the course and the Program can occur as a package. However, if approved as a Liberal Studies natural science option, there is no reason why the course cannot be offered before approval of the Program. The course could be taught as early as Spring 1990, and thus should appear in the 1990-1991 catalog.

IV. Description of Curriculum Change

1. Catalog description - see attachment A.

2. Course syllabus - see attachment B.

3. Course analysis questionnaire.

Section A: Details of the course.

A1. This course is being developed as part of the Gerontology Certification Program being instituted at IUP. It will be one of several elective courses available to students in the program. It will not be restricted to students in this program, however, and thus could potentially serve as an option for the 4-3-3 science component of the Liberal Studies Curriculum. It is not intended for Biology majors and will not count towards fulfilling Biology requirements for any Biology majors in the Gerontology program (The program will be available to students in any major).

A2. No changes in other courses are necessary.

A3. This course will be a traditional type of offering for a non-lab, non-majors course (of which Biology presently has very few).

A4. As far as I know, such a course has never been offered. (Mr. Richard Strawcutter began to develop this course many years ago, but told me that it never got off the ground.) Before the Gerontology Program, the need for this course had not been as great.

A5. This course will be Undergraduate only.

A6. This is not a variable credit course.

A7. This type of course is basic to any institution offering a program in Gerontology. Among SSHE institutions, Edinboro and Shippensburg offer a course in Biology of Aging, California offers a course titled "Health & Physiology of Aging", and Millersville requires a course called "Human Biology" for students in its AS in Gerontology program.

A8. According to information presented to me by The College of Human Ecology, a course such as this will be necessary, or at least instrumental, in gaining approval for the Gerontology Certification Program. Please see the attached letter from Associate Dean Zoni of Human Ecology and Health Sciences. (Attachment C)

Section B: Interdisciplinary Implications

B1. The course will be taught by one instructor.

B2. No prerequisites or corollary courses are needed.

B3. This course will be part of an overall program that will include courses such as Health Aspects of Aging, The Psychology of Aging, Sociology of Aging, etc. It will not be redundant to the content of these, although some conceptual relationships will exist, especially with the Health and Psychology courses, as well as with HP 413 (Physical Activity and Aging) (see attachment D: proposal outline for health course and attachment D-2 for Dr. A. Moore's reaction to this proposal and comments regarding possible overlap with HP 413).

?Not found.

B4. This course would definitely be applicable to a program in Continuing Education. See the attached letter from Dean Kolb of the School of Continuing Education. (attachment E)

Section C: Implementation

C1. Adequate faculty and space resources are presently available. Current Library resources are listed in attachment F. More recent publications of interest should be acquired as they become available.

C2. No course resources are presently funded by a grant.

C3. This course should probably be offered once a year, no less often than every two years. No seasonal restrictions apply.

C4. One section per semester offered.

C5. Preferably, no more than 24 students should be enrolled per section. This is not due to space so much as to the desired degree of student-teacher interaction and the expected amount of technical/ scientific background instruction necessary.

C6. As far as I know, enrollment limits are not recommended by any relevant professional society.

C7. This course will be required of students in the Gerontology Certification Program. Because students in this program can be in any major, the impact of this requirement on free electives depends on how the program as a whole affects the availability.

Section D: Miscellaneous

This course could be offered as a Special Topics offering, as long as this would not interfere with the needs of The Gerontology Certification Program.

Attachment A. Catalog Description

BI 160 Biology of Aging 3c-01-3sh

Prerequisite: does not fulfill Biology major requirements.

An examination of the biological changes that occur during the aging process in humans, including discussion of recent theories on the causes of Aging.

Attachment B: Course Syllabus

BI 160 Biology of Aging 3c-01-3sh.

An examination of the biological changes that occur during the again process in humans, including discussion of recent theories on the causes of Aging.

Instructor: Dr. Harold J. Grau
315 Weyandt
(412) 357-4898

Objectives: This course is designed to introduce and familiarize the non-biologist to the effects of the aging processess on the anatomy (structure) and physiology (function) of the human body. The manifestations and clinical symptomology of aging on each of the major systems of the body will be investigated, as will be the causality and implications of these phenomena. Because the student will not be expected to have much previous knowledge of human anatomy and physiology, each section of the course will begin with a condensed presentation of the basic organizational, structural, and functional characteristics of the systems to be discussed. The successful student will thus, upon completion of the course, have an understanding of the human aging process which can be applied to personal or professional needs.

Grading: Students will be given a letter grade at the completion of the course based on their performance on two regular exams, a final exam, and a written report. Exams will cover material from lectures and assigned readings, and will be of a mixed format (multiple choice, short answer, completion, essays).

Weight?

Each student will be required to submit a written report (typed, double-spaced) by the end of the semester. These reports will consist of more detailed examinations of a particular topic relevant to the course and selected by the student. The reports must include a minimum of seven references, and must be written in proper English (grammar, syntax, spelling, etc.). The report must incorporate information from and student's reactions to the supplmental required book (Strehler). More information on the reports will be given as the semester progresses.

Required Books: Spence, Alexander. 1989. Biology of Human Aging. Prentice-Hall Publ. Co., Englewood Cliffs, N.J.
Strehler, B.L. 1962. Time, Cells, and Agin. Academic Press, N.Y.
Optional: Van De Graff, K. and A W. Rhees. 1987. Schaum's outline of Human Anatomy and Physiology. McGraw-Hill Book Co.
This book offers very basic coverage of human structure and function, organized in simple outline form, with accompanying diagrams, tables, and illustrations. The outline format will allow the instructor to assign readings specifically relevant to the lecture topics. A complete index and problem sets will allow the students to review material discussed and have access to a reference when reading more detailed assignments.
Supplemental required readings: To be assigned from source listed in the bibliography (Attachment F)

Readings?

Journals?

Course Outline: (numbers in parenthesis indicate number of lecture periods devoted to that topic; based on 3 lectures per week for 14 weeks, less 2 periods for exams)

Introduction

What is Aging? (1)
Historical Views of Aging. (1)
Aging in non-human organisms. (1)
Current Theories of Aging (3)

Human Biology

Overview of organization of the body. (2)
Terminology and general concepts. (1)
Homeostasis. (1)

Systemic Review

(Each system listed will be presented by first providing the basic structure and function concepts, followed by discussion of aging effects on that particular system)

The Brain and Nervous System (3)
The Muscles and Motor Control (3)
The Skeleton and Mineral Balance (3)
The Cardiovascular System and Blood (3)
The Immune System (2)
The Respiratory System (2)
The Kidneys and Osmoregulatory Processes (2)
The Endocrine System and Hormones (3)
The Digestive System (2)
The Reproductive System (2)
The Integument (3)

Implications, Interactions, and Prevention (2)

- What can and cannot be avoided or minimized?
- How do these changes impact on social, psychological, and health and wellness issues?
- What more can be learned?

Two days on this seems insufficient.

ATTACHMENT C

COLLEGE OF HUMAN ECOLOGY AND HEALTH SCIENCES
INDIANA UNIVERSITY OF PENNSYLVANIA
INDIANA, PA 15705

DATE: August 30, 1988

SUBJECT: Biology of Aging course proposal

TO: Dr. Harold J. Grau
Department of Biology

FROM: Dr. Carleen C. Zoni
Associate Dean

Thank you for sharing your course proposal for Biology of Aging with me. I asked Jodell Kuzneski of the Department of Nursing to review the course as well since she is primarily responsible for designing the curriculum for the program.

* The course appears to be quite appropriate to the requirements for the Gerontology Certification Program. In addition, I believe it will meet the requirements of the new Liberal Studies program of the university.

As far as I know your course, Biology of Aging, is the only course that has been developed specifically for the Gerontology Certificate Program. The Gerontology Coordinating Committee will be meeting in late September to review the Gerontology Certificate curriculum before it is sent to Dr. Richards and SSHE for final approval. If you are interested in attending the meeting, you are most welcome. The tentative (depending on the majority of schedules, of course!) date and time are Thursday, September 29 at 9:00 a.m. Place. Zink Conference room. Please call Cheryl at x2560 if you wish to attend.

Thank you for your interest in the Gerontology Certificate Program and especially for developing what appears to be a most interesting course! The course is comprehensive enough for non-science majors and should provide students with a good understanding of the biology of aging. I am wondering, however, what is included in the "Implications, Interactions, and Prevention" part of your outline. Also, if I come across a basic gerontology text I will let you know.

CCZ/cv

ATTAchment D

Dr. Ansa Ojanlatva/New Synthesis Course Proposal

INDIANA UNIVERSITY OF PENNSYLVANIA
Department of Health and Physical Education

Health Aspects of Aging

Catalog Description

Designed to synthesize interdisciplinary content on health care and maintenance needs related to wellness in aging, health and gender issues, conditions and personal abilities of older individuals, and to provide opportunities for building empathy skills. Recommended for students interested in working with older adults.

Goals and Objectives

Through readings, lecture-demonstrations, and various class activities, the students will increase knowledge and develop an understanding of health and gender issues and problems affecting older adults. At the skills level, the student will be expected to develop empathy. More specifically, the students will:

1. describe physiological, psychosocial, and intellectual changes which affect health status, life expectancy, longevity, and quality of life, and identify health and wellness methods of assessment which help to evaluate these changes.
2. assess health and wellness maintenance issues, and state a rationale for need for activity and fitness habits, well-balanced nutrition and food habits, relaxation, and regularity in mode of living.
3. develop an understanding of sexual and relationship issues, and make appropriate education, counseling and therapy referrals.
4. determine mental health issues, and identify need for personal independence, autonomy, sense of control, and freedom from worry and tension.
5. define use, misuse and abuse of tobacco, alcohol and drugs among the elderly, including drug use in the institutions.
6. recognize and provide explanations for age-related medical problems, such as low grade infections, frequently occuring conditions, extended critical, deteriorating and terminal illness, and for suicide.
7. plan home care and other long term care options to convalescent and nursing home care, identify programs for preventive and rehabilitative purposes, and investigate financing of health care and maintenance.
8. plan for healthful and supportive physical and social environment for living, work, and play.
9. demonstrate the role of work and volunteer activity in the lives of older citizens, and examine usefulness to society through realistic examples, including (but not limited to) advisors to small business, creative pursuits for which there is time, and day care - grantparent paring.

IUP ATTACHMENT E

Indiana, Pennsylvania 15705

DATE: August 24, 1988

TO: Dr. Harold Grau
Biology Department

FROM: Nicholas Kolb NCK
Dean, School of Continuing Education

I am pleased to support the development of the course, Biology of Aging, as part of the Gerontology Certification Program. It may be possible that professionals employed in nearby nursing homes would be interested in enrolling as part-time non-degree students.

Best wishes for success with the program.

NK:mk

pc: B. Ender
E. Nardi

ATTACHMENT F.

Current holdings in Stapleton library relevant to the Biology of Aging

serials: Experimental aging research (v.1- Sept.1975-)
also, occassional articles/reports in Science, Nature, Bioscience, etc.

films and videotapes: (series on Nursing Gerontology available on VHS)

books:

GENERAL

Adelman, R.C. & G.S. Roth (eds). 1982. Testing the theories of aging. Boca Raton, FL: CRC Press.
612.67 T288e 23

Bakerman, Seymour (ed.), 1969. Aging Life Processes. Springfield, ILL: Thomas.
612.67 AG47A

Birren, James E. (ed.), 1959. Handbook of Aging and the Individual : psychological and biological aspects. Chicago, ILL: University of Chicago Press.
612.67 H191

Burch, Philip Robert James. 1969. An inquiry concerning growth, disease and ageing. Toronto: University of Toronto Press.
616.07 B892N

Chown, Sheila M. (ed.), 1972. Human ageing; selected readings. Harmondsworth, Eng., Baltimore: Penguin Books.
612.67 C459H

Emerson, Geraldine M. (ed.). 1977. Aging. (Benchmark Papers in Human Physiology, vol.11). Stroudsburg, PA: Dowden, Hutchinson & Ross, Inc.
612.67 Ag472n

Finch, Caleb E. & E. L. Schneider (eds.), 1985. Handbook of the biology of aging. 2nd ed. New York: Van Nostrand Reinhold.
612.67 H1912a2

Krohn, Peter L. (ed.), 1966. Topics in the biology of aging; a symposium held at the Salk Institute for Biological Studies, San Diego, CA., Nov. 4-6, 1965. New York: Interscience Publishers.
612.67 SY68T

Masoro, Edward J. (ed.), 1981. CRC handbook of physiology in aging. Boca Raton, FLA.: CRC Press.
599.03 C42r 20

McGaugh, James L. & Sara B. Kiesler (eds.), 1981. Aging-biology and behavior. New York: Academic Press.
618.97 Ag47i 57

Rockstein, M. (ed.), 1974. Theoretical aspects of aging. New York: Academic Press.
599.0372 Sy68t

Shock, Nathan W. (ed.), 1960. Aging - some social and biological aspects. Symposia presented by American Association for the Advancement of Science on Dec. 29 - 30, 1959. Washington.
612.67 Am35

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