R66-21/1929

N O T I C E

There will be a meeting of the

F A C U L T Y OF S C I E N C E

at 3:00 p.m. on Thursday, April 17, 1975

in Room B 21, Nicholson Hall

A G E N D A

1. Environmental Studies Course -
   Please note attached memorandum.
2. A.O.B.
3. Adjournment

M E M O R A N D U M

TO: Dr. J. T. Sears, Dean of Science DATE: January 31, 1975

FROM: Drs. E. W. Grundke, D. L. Bunbury, P. A. Dill, W. S. Shaw

RE: Environmental Studies Courses

This memo is the report of the ad hoc committee on environmental studies courses as established by your memo of December 13, 1974. In submitting this report we ask that the committee be dissolved. We are unanimous in support of our recommendations.

ABSTRACT: We recommend that the Faculty of Science establish two one-semester courses in environmental science, one to serve scientifically mature students and one to serve others.

1. Introduction: What and for Whom?

Environmental Studies has been rapidly emerging as a distinct multi-disciplinary field, a fact that we believe should be reflected in the undergraduate course offerings in the Faculty of Science. We do not recommend the creation of an entire school of environment at this time: that is well in the realm of graduate studies.

Without attempting to define the term "environmental studies" in detail, we wish to point out the enormous range of disciplines it embraces: the social sciences, the life and physical sciences, mathematics, legal studies and others all having a bearing on environmental concerns in the widest sense. Any undergraduate course should maintain a proper perspective of this wide spectrum, although to achieve any depth a course will naturally have to emphasize one region of the spectrum at the expense of others. In marketing terms, a wide spectrum of "products" could be sold under the general environment label.

It is important to realize that the spectrum of "consumers" is as wide as that of the "products", partly because of the interdisciplinary nature of the field and partly because of its current popularity. The students, i.e., the "consumers", form a more-or-less continuous spectrum (from the humanities to the social sciences to the traditional sciences), being discretely pigeon-holed into "arts" or "science" categories largely as a matter of administrative convenience. From an instructional point of view, the spectrum of student backgrounds admitted to a given course must be carefully planned in advance.

In our discussions we have been guided by Figure 1 which represents the spectrum of student backgrounds along the horizontal axis and the spectrum of possible course content vertically. Despite its over simplifications, this picture has proved to be a very useful point of departure. A physics student studying economic factors in urban planning, for instance, falls into the upper right corner.

For reasons that should become self-evident later in this report, we recommend that two distinct courses as shown in Figure 2 be offered in the Faculty of Science. Guidelines for the courses are discussed below in more detail.

Although the uppermost portion (both the left and the right) of Figure 2 is beyond our jurisdiction, we urge the Faculty of Arts to [illegible] it careful consideration.

2. Guidelines for Course I.

2.1 General Goals: 1) To provide science students with an experi[illegible] upon which they can later base intelligent career decisions;

2) To expose science students to interdisciplinary science earlier in their careers than is now the rule; and

3) To provide a reasonable scientific basis for students' contribution to environment-related public affairs in later life.

2.2 Prequisites: Any five university courses in Biology, Chemistry, Geology, Mathematics or Physics.

2.3 Duration: Course I should be offered initially as a one-semester three-credit course during a winter semester. We can easily foresee this course becoming a two-semester course, although it may be easier to initiate as a one-semester course. Given sufficient demand the course might be given in the summer also.

2.4 Course Description: Course I should assume a reasonable degree of scientific maturity on the part of the student. It should teach the fundamental principles and concepts of environmental studies in as quantitative and rigorous a fashion as possible. A supplementary attitude represented by a problem-oriented approach using case studies and the like might be used to advantage in labs and field trips but should not be the main emphasis of Course I. The course should be broadly based on all the sciences where possible. The diversity of student backgrounds might possibly be used to advantage by employing a peer teaching method for parts of the course.

2.5 Course Content: We recognize that ecology should form a major part of Course I. It could form the core of a large portion of the course, l receive more support from the related sciences than is provided in pres typical ecology courses. For example, in a section of the course deali with the ecology of the topsoil, a firm base of the relevant geology ou to be taught (or reviewed) first. We firmly believe that the impact of humanities and social sciences on environmental studies (upper part of Figure 2) should be mentioned in Course I along with the more traditionally scientific content.

Further details of course content should be left to the discretion of the instructor.

2.6 Laboratory Requirements: We urge that laboratory sessions and field trips be used to give students practical experience in situations where basic principles learned in lectures can be applied. We realize that the expenditure of considerable sums will be necessary to equip a laboratory adequately.

2.7 Staffing: The goals concerning career choices could be realized best by staffing this course with an environmentalist who is actually a graduate of one of the Canadian Environmental Schools. Such an instructor would be a valuable counsellor in helping students decide whether to take environmental studies in a graduate school, where to apply, and what options to select upon admission. The instructor should have a strong science background and some practical experience in environmental problems. His or her departmental affiliation should be negotiable.

2.8 Graduate Studies in Environmental Studies: The committee has surveyed the programs and entrance requirements of four Canadian schools offering Masters' programs in environmental studies (Waterloo, York, Dalhousie, Western). None require previous training in environmental studies. Often the requirements on the quality of the candidate's Bachelor's degree are fairly rigid (eg. "honours only") but the discipline in which the degree was obtained is almost irrelevent!

Therefore Course I is not constrained to meet any entrance requirements; we have been free to set the goals of 2.1 with nothing but the students' best interests in mind.

3. Guidelines for Course II

3.1 General Goals: 1) Similar to 2.1 (3), but for students lacking the prerequisites for Course I (primarily arts students).

2) To encourage arts students to stray across the arts/science boundary in their choice of electives.

3.2 Prerequisites: Any five university courses.

3.3 Duration: Similar to 2.3 although an extension to two semesters seems less likely than for Course I. We expect students will be pairing Course II with other half-courses now being offered specifically for arts students by science departments (eg. Physics 265, Physics 275, Biology 320, etc.).

Parenthetically, we urge the Faculty of Science to arrange its offerings for arts students in a visible way. A brief portion in the B.A. Section of the calendar might list the available courses where the potential audience is most likely to notice it.

3.4 Course Description and Content: Although the content might be similar to that of Course I, the approach would be descriptive rather than quantitative, in keeping with the students backgrounds. A problem-oriented approach may well provide better motivation for students in Course II, although this must not degenerate into a blind witch-hunt for industrial polluters. More emphasis should be placed on disciplines in the upper portion of Figure 2.

3.5 Laboratory Requirements: No labs, but field trip discretion.

3.6 Staffing: The instructor of Course I could also teach Course II, especially if the requirements of 2.7 are met.

4. Summary and Conclusion

We wish to restate our fundamental recommendations -- namely that undergraduate environmental studies courses should indeed be offered in the Faculty of Science. In our opinion the needs for such courses could be best met by creating two courses, one for scientifically mature students and one for other students.

We hope that our proposals will provide a useful springboard for action.

Ernst W. Grundke, Chairman

David L. Bunbury

Peter A. Dill

William S. Shaw

cc Dr. J. J. MacDonald

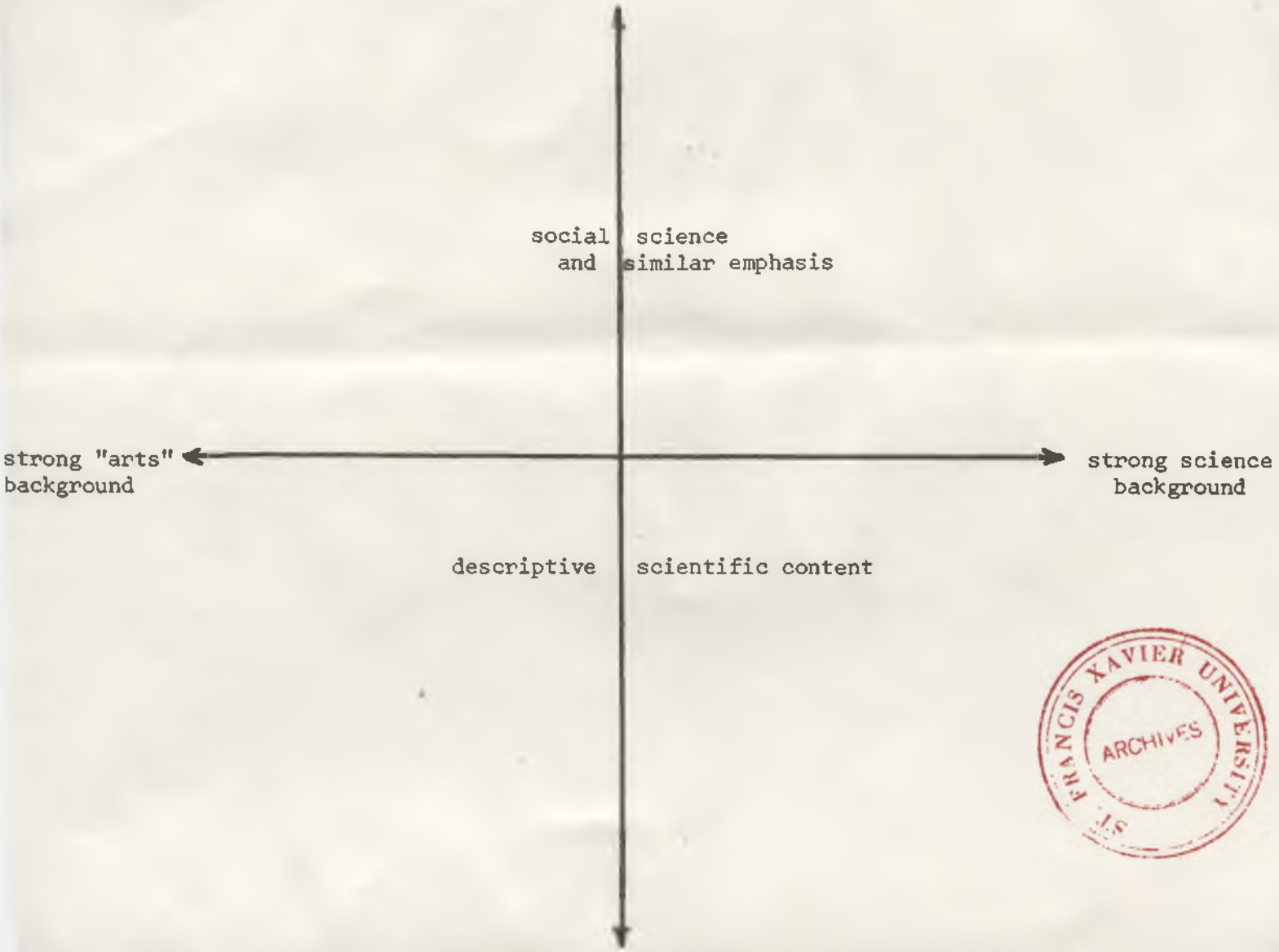

FIGURE 1

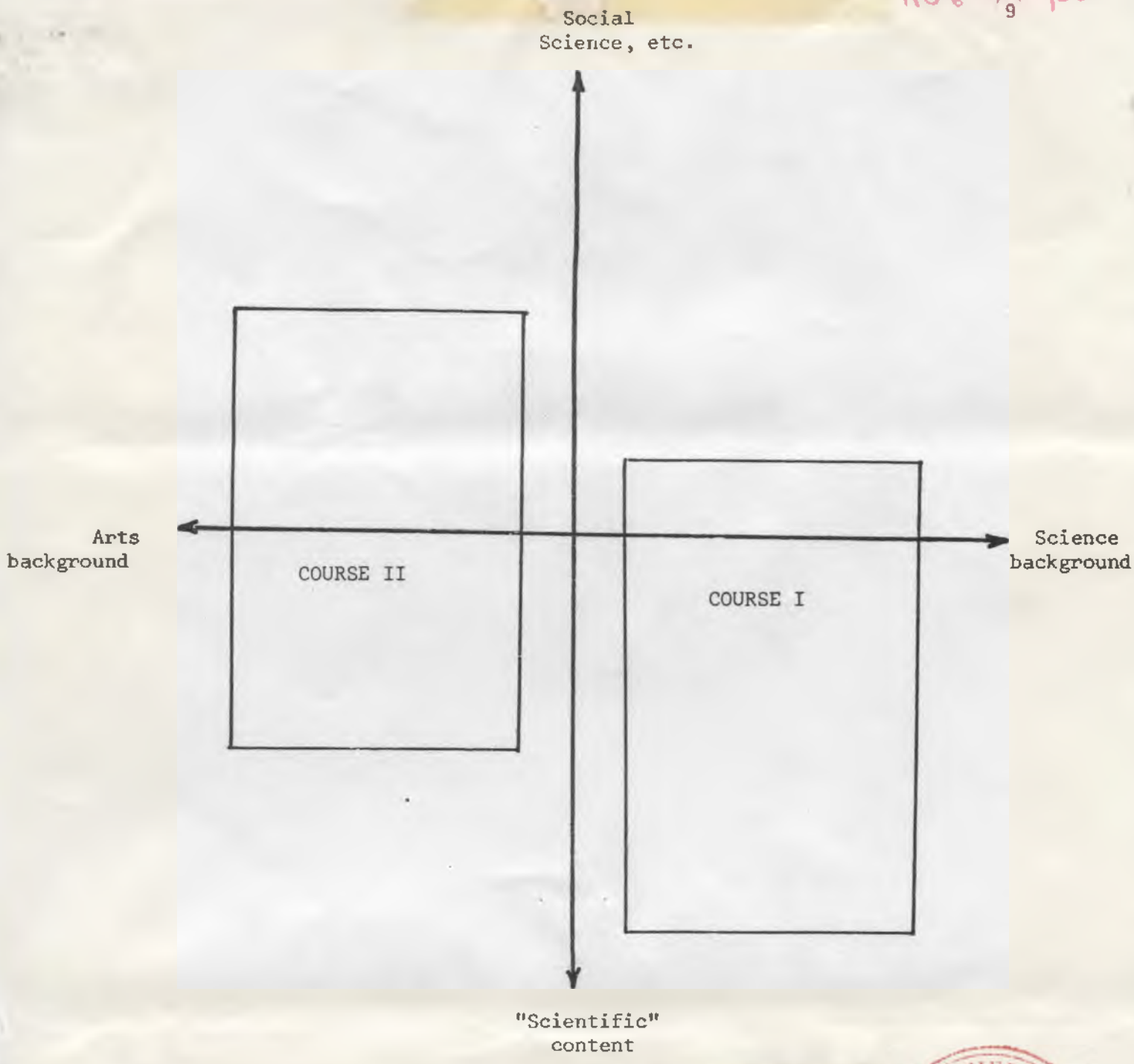

FIGURE 2

April 28, 1975

ST. FRANCIS XAVIER UNIVERSITY FACULTY OF SCIENCE MINUTES

A meeting of the Faculty of Science was held at 3 p.m. on Thursday, April 17, 1975, in room B19 in Nicholson Hall with Dr. W. Shaw in the chair. Twenty-six members were present.

The Dean offered a correction to the minutes of the meeting of March 26. Referring to the second paragraph on page six of the minutes the Dean stated that it is not, in fact, possible for students to enter the Science Education Program after the second year of their studies.

Dr. Asadulla moved that the minutes be approved. The motion was seconded by Dr. Dill and passed.

Business Arising From The Agenda

1. Environmental Studies Course

The Dean moved to remove the motion of Dr. Grundke from the meeting of March 26 from the table. The motion was seconded by Dr. Bunbury and passed. The motion read: "That the Faculty of Science approve, in principle, the report of the committee on Environmental Science Courses."

Dr. Chiasson said that he was not sure that the need for the Environmental courses had been established. He stated that he realized that data on this was rather difficult to gather.

The Dean said that the faculty, in passing the motion, would only be approving the report in principle, and that accepting the need for the course as stated in the report does not necessarily require a positive response from the Dean. Therefore, it should not be regarded as tying his hands unnecessarily. He stated that the course should not be offered to the exclusion of other courses and also that it would not be offered next year. The Dean further stated that the report gives useful direction as to when and to whom such a course or courses should be offered.

Dr. McBride noted that on page 9 of the report of the committee it could be observed that there was a high science content in course 1 and that on page 4 in paragraph 2.5 it could be noted that ecology forms a major part of this course. He stated that the content of the ecology would be mainly biology and geology and that one could not get into physics and chemistry in such a short course. He felt that physics and chemistry should not be considered as acceptable prerequisites for this course as more biology and geology would be needed. A person with no geology or biology in his background could, according to the report, take this course No. 1 and Dr. McBride felt that this would be an inadequate preparation for the large scientific biology and geology content of this course. He said that perhaps the scientific content should be reduced.

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Dr. Bunbury stated that scientific maturity rather than a specific background was what the committee has found desirable. The professor offering the course could conceivably make more specific requirements.

Dr. Liengme stated that Environmental Science Programs in graduate school generally do not require specific sciences and that therefore one should not make the requirements for this course so exclusive that only students from one department would be able to take it. Some discussion then ensued.

Dr. Asadulla mentioned that, "Mathematics and the Environment" courses exist in the United States.

Dr. Aalto stated that there could perhaps be a "catch 22" aspect to the staffing of this course as one might hire an environmentalist to teach the course and then reject the course which he proposed.

The Dean suggested that this would not be the course followed.

Dr. Secco inquired as to what was meant by "The Rule" in paragraph 2.1 on page 3 of the report.

The Dean stated that "The Rule" is now that no course in this field is offered.

Dr. Secco stated that science students now do get exposure to inter-disciplinary and environmental subjects in the courses of the individual disciplines.

Dr. Bunbury stated that although this might be the case, the inter-relations between the disciplines might be neglected in departmental courses.

The question was called and passed with only two nays.

2. Science Education Program

Dr. Liem asked why we accepted students after the end of their second year in the past and why we cannot do this now. He stated that some students were in fact interested in entering this program now after their second year.

The Dean replyed that he and others had previously not been aware of the commitment to the Nova Scotia Department of Education to admit students to this program only after the first year of their studies so that the program in which they enrolled would be an intergrated 3 year program. He further stated that it was impossible to get in all the required education courses in two years and that there were scheduling problems involved.

Dr. Liem stated that 10 students ending their first year, as well

as 10 students ending their second year, had expressed interest in the science education program and these together would make enough students for a special course in education for this group. He stated that one of the main problems was scheduling, in that education courses now meet for one and one-half time blocks and suggested that these could be made to conform to the same kind of schedule as other courses.

The Dean replied that there was not sufficient personnel in the education department to mount such a special course and that the requirement of the Nova Scotia Department of Education is for a three year integrated program, i.e. what we have done in the past was not correct.

Dr. Shaw suggested that Dr. Liem should make his proposals to the committee on studies.

Dr. Liem asked whether one must now refuse admission to the program to students ending their second year and the Dean replied no, as these students could enter the program if they were willing to spend three more years on campus getting their degrees.

Under AOB the Dean reminded the faculty that Dr. Foley was about to retire and that Dr. Clark was about to enter on a sabbatical leave prior to retirement. He suggested that members of the university faculty who have observed them over the years in the performance of their duties here, should express their gratitude to both Dr. Foley and Dr. Clark.

A loud round of applause was heard.

The meeting adjourned at 3.50 p.m.