

## MEMORANDUM

To	J.F. Cochran	From	A.G. Sherwood, Chairman
	Department of Physics		Faculty of Science
			Undergraduate Curriculum Committee
Subject	Occupational Health Sciences Program	Date	1980 12 22

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Premature congratulations! I have been Chairman of the Faculty Undergraduate Studies Committee and, as such, have been sitting as Faculty representative on SCUS. There will be an important recommendation brought to Senate early in the new year which I should like to warn you about. The item in question is the proposal by the Kinesiology Department to mount programs in Occupational Health Sciences and I argued (unsuccessfully) in SCUS that the proposal, if adopted, could do very serious damage to SFU's reputation.

The proposal was made in answer to a serious shortcoming in Canada's record in occupational health and safety. It was argued that SFU should mount programs to prepare persons to function as professionals who could deal with a broad spectrum of hazards in the workplace:-

- hazards due to faulty workplace and tool design;
- physical hazards (noise, vibration, radiation, electricity, etc.);
- biological hazards (sanitation, bacteria);
- chemical hazards (poisons).

#### The Extended Studies Diploma Program

The professional OHS worker is to be prepared by an Extended Studies Diploma Program of one year duration during which the candidate is to complete 30 semester hours of upper division courses. The prerequisite for entry into the program is to be an undergraduate degree, certificate, or diploma and an "adequate" background in chemistry, physics or engineering, human physiology, mathematics and statistics. In reality, the level considered adequate is that obtained in the B.Sc. (Kinesiology) program, i.e.:

- (1) first year physics (no laboratory courses);
- (2) first year biological sciences plus BISC 201-3 (Cell Biology);
- (3) first year chemistry plus one semester of organic chemistry -- (no inorganic chemistry, no analytical chemistry and no biochemistry).

The program itself has a core of 26 semester hours of upper division courses which include several OHS courses plus BISC 311-3, An Introduction to Toxicology and BISC 650-3, Industrial Toxicology. In addition, students must choose 2-3 courses from an extended and broad list ranging from BUS 371-3 to BISC 810-2.

The program is certainly interesting and useful. The important question is whether it can produce what can be regarded as professional occupational health scientists. A professional in this area should be capable of accepting full responsibility for the evaluation of a workplace with respect to all health hazards. He/she should be able to either certify that no hazards exist or, be able to identify hazards and recommend methods for their elimination. A graduate from the ESD program will be in no position to accept this level of responsibility. The program can serve the very useful function of producing informed laymen but any attempt to create the impression that the OHS program is a professional program will reflect very badly on SFU.

Several arguments were raised in SCUS in the course of this discussion:

- (1) The program is a compromise between the desired level of competence and that level which can be obtained by a Kinesiology graduate in the course of a one year program.

If the level is inappropriate for the preparation of professionals then it should not be advertised as a professional program.

- (2) Kinesiology graduates are presently carrying out the functions of OHS workers in industry and government without this training. The program will improve their qualifications.

Undoubtedly! Anyone can hire anyone to do anything but when the University lays the label of professional on one of its graduates, the credibility of the University is at stake.

- (3) Such programs in Canada and the U.S. are successful in producing OHS professionals.

Perhaps this is true (no data were offered), but we are confronted, in spite of such professionals, with disasters like Love Canal, thalidomide, dioxin, asbestos, poly-chlorinated biphenyls, etc., etc. SFU should hardly be in a hurry to contribute to such problems by injecting, into the fray, unqualified "professionals".

The program is certainly worthwhile if it produces graduates who are capable of realizing the complexity of the problem of occupational health. Such people would see the necessity of using real professionals - toxicologists, microbiologists, engineers, etc. - to deal with these problems. They should not be put in the position of having to make judgements for which their training has not prepared them.

If, on the other hand, we are interested in making a contribution to the education of occupational health scientists, we should examine the nature of the problem, decide what level and range of expertise is necessary to cope, and make no compromises in preparing the required professionals.

In the course of such an analysis, it may be necessary to decide that:

- no single degree or diploma program is sufficient to prepare professionals to handle all types of problems, i.e. specialization is necessary (toxicologist, microbiologist, kinesiologist, etc., each specializing in a facet of the OH problem).
- a level of interdisciplinary co-operation, much higher than has so far occurred is necessary. Perhaps no single department has the expertise necessary to deal with all sorts of occupational health problems.
- that undergraduate degrees are inadequate, i.e. graduate programs are necessary preparation for professionals.
- that entry into graduate work in this area is not possible, simply on the basis of some present undergraduate SFU degree, i.e. that our present degrees are too narrow or shallow in critical areas to provide the preparation necessary to initiate the investigation of occupational health problems. It may be necessary for the chemistry honours graduate to take some lower division BISC courses, or for the kinesiology graduate to take some lower division CHEM courses.

It might be pointed out that in the planning of the Environmental Toxicology Program, the approach was:

- to provide exposure to a narrower range of problems;
- to make no pretense to providing professional qualification;
- to require as prerequisites, those courses which are considered necessary. This means that no B.Sc. graduate can enter the program without picking up some lower division courses from outside the major department. This requirement was considered necessary to ensure that the courses in toxicology could be given at a substantial level.


#### The Honours & Minor Programs

The proposal for a minor in OHS can hardly be objected to. It cannot be expected to produce either professionals or candidates for graduate programs in OHS. The honours program, on the other hand, should at least provide all the training at the undergraduate level necessary to start research in a graduate program and to take substantial graduate courses. The science requirements in the OHS honours program are those of the present kinesiology program with the addition of two courses in biochemistry and the deletion of BISC 203-3, Developmental Biology.

It is difficult to see how such a background can serve as the foundation upon which a student can build a respectable graduate program in OHS. If the kinesiology department intends to initiate the establishment of a graduate program in OHS at SFU, it would be wise to start with an adequate honours program.

In summary, it seems to me that this proposal should not be passed by Senate unless the kinesiologists disavow all pretensions that the programs will produce professionals. The candidates will be incapable of carrying out professional responsibilities and any attempt by the University to suggest otherwise will do us considerable damage.

AGS/mgj



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A.G. Sherwood