

Science Fiction Courses: An Example and Some Alternatives

STANLEY A. SCHMIDT

Department of Physics

Heidelberg College

Tiffin, Ohio 44883

(Received 12 March 1973)

Science fiction (SF) courses, recently increasing in popularity, are discussed with particular emphasis on their potential value in teaching and increasing student interest in science and science-society interactions. Several general types of SF courses are discussed, and a sample course which has been given at Heidelberg is described in some detail. Suggestions are given for others considering offering SF courses, including examples of reading lists and sources of additional information and teaching aids.

INTRODUCTION

In a very few recent years, science fiction (SF) courses have become an accepted part of the curriculum at a sizable and rapidly growing number of colleges and universities. Jack Williamson, in the latest of his periodic reports on science fiction in schools,¹ mentions knowing of some 240 courses and cites one informed estimate that the actual total is already closer to 1000. These courses are extremely diverse in their content, approach, and even the departments in which they are offered, ranging from English to popular culture to physics. The primary motivation for this article is the potential relevance of such courses to things physics teachers wish to do; however, it should be borne in mind that science fiction is more than just physics problems in fictional guise.

That is perhaps the most obvious application that a physics teacher might make of science

fiction—to use story situations in so-called “hard” science fiction as vivid, interest-holding illustrations of the scientific principles he teaches. Numerous stories exist which can serve very well in this capacity at levels ranging from captive audiences in introductory courses to senior seminars for science majors. [The idea of using science fiction with such advanced students should not be taken too lightly. Some very sophisticated thought goes into the planning of some stories, and many scientists (myself included) have been attracted into science largely through the fiction of such writers as Isaac Asimov and Robert Heinlein. I don’t know how many, but Asimov² has estimated that fifty percent of creative scientists have had some interest in science fiction.] At the introductory level, selected science fiction can help to stimulate interest in science, either in special SF courses or as illustrative material in more conventional courses. But the same forces which have led to the current wave of interest in “Science and Society” courses should also encourage physicists to consider looking at science fiction in a more inclusive way. For modern science fiction is less often concerned with technical novelties *per se* than with their impact on ways of life—in other words, with likely future interactions of science and society. In this area it has consistently tried to look realistically at such problems years before they actually became urgent.

Science fiction courses can take many forms, depending on such factors as their intended functions and the backgrounds of both students and instructor. This article will briefly describe several general types of SF courses which can be given and then one such course which has been successfully taught twice at Heidelberg College.

TYPES OF SF COURSES

Courses can be classified in many ways, but for the purposes of this article it seems useful to divide them into three broad classes according

to their primary emphasis:

(1) *Courses dealing primarily with the science in science fiction.* One such course was recently described in this journal.³ The reference cited describes use of SF stories with strong scientific elements as starting points for discussions of the underlying concepts. It includes an extensive annotated list of readings which lend themselves to this. There is one noteworthy recent anthology which I feel I should mention as a valuable addition to the list: Isaac Asimov's *Where Do We Go From Here?*⁴ This is a collection of stories edited with just such use in mind—stories which can well stand on their entertainment value alone, but are accompanied by commentary and leading questions to provoke discussion of the underlying science, plus supplementary references for readers who want to pursue any of the subjects further.

(2) *Courses dealing primarily with the fiction, with the scientific elements treated only as incidental parts of the background.* I must confess to a certain bias against this type of course (but then, it is the one least likely to be given by readers of this article). In most good science fiction, the scientific elements are *not* just incidental parts of the background—they are so integral to the structure of the story that they cannot fairly be ignored even by readers whose interests are primarily literary. Also, in my experience too often this type of approach leads to a tendency to dissect stories so completely as to destroy the reader's enjoyment of them—and enjoyment is still their basic reason for being. There is also a danger, in the course of such dissection, of reading too much "hidden meaning" into the narrative—a tendency which has often been deplored by students, writers, and editors alike.⁵ Most of the SF writers I know and respect take considerable pains to say what they mean; they deserve to be taken at their word.

(3) *Courses treating science fiction as a unity, with equal stress on both words.* I personally find this type most satisfying—as a science fiction writer myself, I am very much concerned with both the literary and scientific aspects and the interactions between them. The elements (astronomical, physical, biological, psychological, sociological, literary) often interact so strongly that trying to isolate them and consider one without reference to the others is difficult and contrived. In this fact lies much of the fun and beauty of

science fiction, and in a course which does not claim to be a physics course with incidental literature or a literature course with incidental physics, I can give full attention to whatever aspects of a story seem most important, without feeling that I'm off the subject.

THE HEIDELBERG COURSE

The course I have given at Heidelberg is of the third type. It is a one-semester, two-hour course given as part of an experimental program intended to provide seminar opportunities in subjects outside normal departmental boundaries, particularly for freshmen. For this reason, a large percentage of the students have been freshmen, with interests covering most of the range to be expected in a small four-year liberal arts college (total enrollment about 1200). However, there have also been several upperclassmen, in such fields as biology, English, history, psychology, economics, physics, and chemistry. Most of the students had little or no previous familiarity with science fiction; however, a few had quite extensive reading backgrounds.

The course is taught from a writer's point of view. That is, in addition to introducing students to science fiction as a branch of literature from a reader's standpoint, I try to give them a feel for what kinds of things SF writers try to do and how they do them, drawing often on my own experience and that of other writers.

The class conduct itself was strongly influenced by my correspondence and conversations with the late John W. Campbell, who, as editor of *Analog* (formerly *Astounding*), exerted a very powerful influence on the development of modern science fiction.⁶ It includes weekly two-hour idea-oriented discussions by the whole class and individual conferences to work out ideas for stories or papers.

The class discussions are conducted as informal seminars; there is no formal lecturing or (hopefully) dissection of stories to the point of destroying enjoyment of them. The discussions may go in quite unexpected directions, but they do have more or less definite starting points. Each week I assign a group of stories to be read, all related in some way to a particular topic or group of topics which might deal with theme (including underlying science), method, or history. I then go to the following week's class meeting with a

number of possible take-off points for discussion related to those topics. Sample topics include:

- What is science fiction?
- What is "good" science fiction?
- Credibility and the two kinds of speculation: extrapolation and innovation.
- Variety in human culture, past, present, and future: What is human nature?
- Character in science fiction.
- Alien viewpoints.
- Language, semantics, and thought patterns.
- Realities of publishing and how they affect the development of a literature.
- From idea to story: a case history (using one of my own stories in its published form,⁷ together with all working notes).
- The science fiction detective story.
- The superman concept.
- Social responsibility of scientists.

A few points should be emphasized in connection with this list. First, I never formally announce, "Next week's topic is going to be . . ." I simply go in and begin asking hopefully provocative questions, from which the student can (if he cares to) later figure out what the unifying topic was supposed to be. Second, there is no one-to-one correspondence between topics and stories. Some of the topics listed above could be considered in connection with everything we read, and some stories might have bearing on several topics. (To give an extreme example, we discussed A. E. Van Vogt's *The World of Null-A* and Robert Heinlein's *The Moon Is a Harsh Mistress* together, and I found at least four broad topics that were pertinent to both of them.) Third, I felt no obligation to stick to the script—quite often a discussion led far away from its original destination, and I think I gained much more by recognizing interest and going along with it than I would have by trying to force things back into a preconceived mold.

Some physicists may be disturbed by the scarcity of explicitly physical topics in the list. About this I will simply point out that this type of subject constantly arises in connection with discussion of specific stories. Examples of specifically physics-related subjects which we have discussed at one time or another include relativity

(both special and general), novae, supernovae, and black holes; gravitation and the history of science; the Moon as an environment; artificial intelligence; the mechanics of winged flight; the economics of space travel; and nuclear power and fusion research.

A list of readings that have been used, together with a few additional listings which may be helpful to others wishing to give courses, is given in the Appendix. The readings that were used represent those paperbacks which happened to be available at different times from a considerably longer list which I tried to get. The actual list used in any one semester was slightly (but not much) shorter. In general, due to the vagaries of paperback publishing, it is necessary to order more titles than will be used, and then use those which show up—which may result in a smaller and less well-balanced selection than was intended.

A few discussion sessions have used a slightly more structured variant of the basic format. In these cases the class was broken into groups of three or four, each of which independently worked out a solution to a situation problem which might form the basis of a story. This required not only thinking, both technical and otherwise, about the consequences of given information, but also an examination of what information was relevant to the problem. I was available as a consultant to provide any information which a group decided it needed but was not given at the outset. A time limit was set for solution of the problem, at the end of which each group presented its solution to the entire class and had to defend its reasoning against cross-examination from members of the other groups. These sessions seemed to be both especially effective and especially enjoyed by most of the students, so I will probably use them more in the future.

In addition to reading and class discussion, I expect one good piece of tangible work from each student. This may be either an original story or a research paper. In either case, I work with the student in much the same way as an editor often works with an author. The procedure includes one or more individual prewriting idea conferences, submission of finished drafts of stories or papers, return of drafts with constructive rejection letters when necessary (usually), and revision

until an acceptable version is produced. (Interestingly, practically all students have chosen to write stories. Several remarked that the experience was completely new to them, and many found it difficult but interesting. The most sophisticated stories were produced by the students with the most extensive prior reading backgrounds; the less experienced students tended to produce rather "1930-ish" stories.)

The whole class is graded pass-fail and there are no exams. I suspect use of letter grades would stifle the kind of discussion I like to have in the course. There are occasional problems with getting some students to do enough reading before class, but these problems have been relatively minor and, I think, more than outweighed by the advantages of pass-fail grading. Enrollment is limited to fifteen, which makes it possible to use the class format described. Because the class discussions are an important part of the course and do not duplicate material available elsewhere, attendance is required.

Student response, determined by informal comments and the same detailed questionnaire used to evaluate all courses offered by our physics department, has generally been quite favorable. Several students suggested that the course be expanded to two semesters. There was considerable demand for repetition of the course, but changes in my regular teaching load have made this impossible at present. However, one group of students was so interested that they talked me into starting an informal version of the course which has been meeting over lunch once a week. Even though there is no credit or other "mercenary" incentive for doing the reading or attending these meetings, it is rare for a member to miss one. In fact, this "non-class" has had a negative drop-out rate, with new students occasionally hearing about it and joining the group. This, to me, is the most gratifying evidence of student interest in the kind of thing I have tried to do in the Heidelberg SF course.

CONCLUDING REMARKS

Both my experiences with the Heidelberg course and the much larger group of observations collected by Williamson¹ indicate that science fiction courses can be an effective way of attracting the interest of a wide range of students

to matters scientific—both "pure" science and questions of its impact on civilization. Of course, it is not the only means of doing this, and I would not advise anyone to offer a science fiction course unless he himself is actually interested in science fiction and at least somewhat knowledgeable about it. Even then, I would emphasize that the course described here is only illustrative, and anyone considering offering such a course would be well advised to look at several others and devise a format suited to his own tastes and talents. For example, in most cases it would probably be unwise for a person with no pertinent writing experience—professional or possibly fanzine—to try to teach writing. Some instructors might not feel comfortable with the free-wheeling discussion format I have described here—the instructor using it must be prepared either to lead the discussion on when it threatens to die, or to follow it into unplanned territory when student interest leads there. Either of these occurrences can be unnerving, but they can also be very rewarding for those who can be comfortable under such conditions. For others, many alternatives exist, such as lectures or more rigidly organized seminars. A few of the possibilities were suggested broadly earlier in this paper; more details on many of them can be obtained from Williamson's paper¹ or some of the instructors of courses listed there. By considering these possibilities, many physicists may well be able to construct some form of science fiction course which is both fun to teach and a helpful way to stimulate student interest in physics, science generally, and the relationship of science to civilization.

APPENDIX: READINGS AND SUPPLEMENTARY AIDS

The following short stories and novelettes have been used in our course (the list is intended as representative, not definitive): Poul Anderson, "Kyrie"; Isaac Asimov, "The Billiard Ball"; Isaac Asimov, "The Dead Past"; Isaac Asimov, "Nightfall"; Samuel R. Delaney, "Time Considered as a Helix of Semi-Precious Stones"; Philip K. Dick, "We Can Remember It For You Wholesale"; Daniel Keyes, "Flowers for Algernon"; David A. Kyle, "Toys for Debbie";

C. M. Kornbluth, "The Silly Season"; Katherine MacLean, "Fear Hound"; Bob Shaw, "Light of Other Days"; and Theodore Sturgeon, "Thunder and Roses." All of these stories are available in at least one anthology or one-author collection. A convenient way to locate them is by using an index such as Frederick Siemon's *Science Fiction Story Index 1950-1968* (American Library Assoc., Chicago, IL, 1971) or others which are issued periodically.

A few anthologies which are especially useful are: *Science Fiction Hall of Fame, Vol. I*, edited by Robert Silverberg (Avon, New York, 1972); *Where Do We Go From Here?* edited by Isaac Asimov (Fawcett, Greenwich, CT, 1971); and *Famous Science-Fiction Stories: Adventures In Time and Space*, edited by Raymond J. Healy and J. Francis McComas (Modern Library, New York, 1957).

In addition to these, the major SF magazines (*Analog*, *Galaxy*, *If*, and *The Magazine of Fantasy and Science Fiction*) periodically publish selections of recent stories. (These magazines themselves are also major sources of current science fiction.) The Science Fiction Writers of America produce an annual anthology of winners and near-winners of the Nebula awards given annually to stories voted "best of the year" by the membership (all of whom are professional science fiction writers).

Novels we have used include: Isaac Asimov, *The Caves of Steel* (Pyramid, New York, 1962); Isaac Asimov, *The Naked Sun* (Lancer, New York, 1969); Isaac Asimov, *The Currents of Space* (Lancer, New York, 1966); Harry Harrison,

The Daleth Effect (Berkley, New York, 1970); Robert A. Heinlein, *The Moon Is a Harsh Mistress* (Berkley, New York, 1966); Anne McCaffrey, *Dragonflight* (Ballantine, New York, 1968); Theodore Sturgeon, *More Than Human* (Ballantine, New York, 1953); and A. E. Van Vogt, *The World of Null-A* (Berkley, New York, 1970).

Sam Moskowitz's *Seekers of Tomorrow*⁸ is an interesting account of the development of modern science fiction, told through short biographies of important authors. This is currently out of print but may be available in libraries.⁸

Libraries, incidentally, can sometimes be helpful not only as sources of additional or otherwise unavailable books, but as sources of other aids such as collections of author's manuscripts, working papers, and correspondence. However, library collections, even of "standard" books, vary widely and should be checked out before plans are made to use them.

Movie and television attempts at science fiction, with a few exceptions [e.g., *The Andromeda Strain*, *Charly* (based on Keyes's *Flowers for Algernon*), and *Star Trek*] are poorly done by the standards of serious science fiction, so few valuable aids are available in this area.

Films of another type—lectures by and interviews with prominent SF writers on various aspects of the field—are available from the Science Fiction Writers Speakers Bureau. These will eventually include a series of 16-20 segments which will constitute a short SF course in themselves or can be used to supplement other courses.⁹ The Speakers Bureau can also arrange live lectures by many writers.¹⁰

¹ J. Williamson, *Teaching SF* (Jack Williamson, Portales, NM, 1972), p. 1. This report includes a listing of science fiction courses, in some cases with brief descriptions.

² I. Asimov, *Is Anyone There?* (Ace, New York, 1967), p. 301.

³ G. P. Galame, *Am. J. Phys.* **41**, 184 (1973).

⁴ *Where Do We Go From Here?*, edited by I. Asimov (Fawcett, Greenwich, CT, 1971).

⁵ Numerous private communications.

⁶ See, for example, S. Moskowitz, *Seekers of Tomorrow* (Ballantine, New York, 1967). For a brief description of his methods of working with authors see *John W. Campbell: Collected Editorials From Analog*, edited by H. Harrison (Doubleday, New York, 1966).

⁷ S. Schmidt, "Lost Newton," *Analog* **86**, No. 1, 8 (Sept. 1970).

⁸ Another book which some readers may find useful in this area is Sam J. Lundwall's *Science Fiction: What It's All About* (Ace, New York, 1971). This includes historical material not included in Moskowitz's book, as well as extensive discussion of major themes in SF and such sidelights as the influence of organized fandom.

⁹ For further information and film rentals or purchase, write to: Audio-Visual Center, 6 Bailey Hall, Dept. SFWSB, University of Kansas, Lawrence, Kansas 66044.

¹⁰ For further information, including a brochure listing speakers registered with the bureau and describing their backgrounds and lecture topics, write to SFWSB Headquarters: Harvey L. Bilker, 4 Sylvan Blvd., Candlewood, Lakewood, NJ 08701.