



Physics

STATE UNIVERSITY OF IOWA
Iowa City, Iowa.

CALENDAR

FIRST SEMESTER 1959-60

September 8, Tuesday—Last date for filing applications for admission
September 18, Friday—Reporting date for new undergraduates who have not completed the Placement Tests, 1:00 p.m.
September 20, Sunday—Orientation for all new undergraduates, 7:00 p.m.
September 21, Monday—Beginning of registration
September 24, Thursday—Opening of classes, 7:30 a.m.; University Induction Ceremony, 9:25 a.m.
October 9 and 10, Friday and Saturday—Homecoming; classes suspended Friday, 12:20 p.m.
November 25, Wednesday—Beginning of Thanksgiving recess, 12:20 p.m.
November 26, Thursday—University Holiday, offices closed
November 30, Monday—Resumption of classes, 7:30 a.m.
December 18, Friday—Beginning Holiday recess, 5:30 p.m.
December 24 and 25, Thursday and Friday—University Holiday, offices closed
January 1, Friday—University Holiday, offices closed
January 4, Monday—Resumption of classes, 7:30 a.m.
January 29, Friday—Beginning of Examination Week, 8:00 a.m.
February 5, Friday—Close of First Semester classes, 5:30 p.m.
February 6, Saturday—University Commencement, 10:00 a.m.

SECOND SEMESTER 1959-60

January 28, Thursday—Last date for filing applications for admission
February 8, Monday—Beginning of registration, 8:00 a.m.
February 10, Wednesday—Opening of classes, 7:30 a.m.
February 25, Thursday—Foundation Day
April 14, Thursday—Beginning Easter recess, 12:20 p.m.
April 19, Tuesday—Resumption of classes, 7:30 a.m.
May 30, Monday—University Holiday, offices closed
June 1, Wednesday—Beginning of Examination Week, 8:00 a.m.
June 8, Wednesday—Close of Second Semester classes, 5:30 p.m.
June 10, Friday—University Commencement, 9:30 a.m.
June 11, Saturday—Alumni Day

1960 SUMMER SESSION

June 3, Friday—Last date for filing applications for admission
June 13, Monday—Orientation for new undergraduate students
June 14, Tuesday—Registration for eight-week session, 9:00 a.m.
June 15, Wednesday—Opening of classes, 7:00 a.m.
July 4, Monday—University Holiday, offices closed
August 10, Wednesday—Close of Summer Session classes, 5:00 p.m.; University Commencement, 7:30 p.m.
August 11, Thursday—Opening of Independent Study Unit for Law and Graduate students
September 5, Monday—University Holiday, offices closed
September 7, Wednesday—Close of Independent Study Unit

FIRST SEMESTER 1960-61

September 6, Tuesday—Last date for filing applications for admission
September 16, Friday—Reporting date for new undergraduates who have not completed the Placement Tests, 1:00 p.m.
September 18, Sunday—Orientation for all new undergraduates, 7:00 p.m.
September 19, Monday—Beginning of registration
September 22, Thursday—Opening of classes, 7:30 a.m.; University Induction Ceremony, 9:25 a.m.
October 21 and 22, Friday and Saturday—Homecoming; classes suspended Friday 12:20 p.m.

PHYSICS

Head of Department, James A. Van Allen
Office, 108 Physics Building

The courses and programs for degrees of the Department of Physics have been arranged to meet the needs of a wide variety of students. These students include undergraduates in the liberal arts college who seek for its cultural value some understanding of the science that is the basis of our technological civilization, undergraduates preparing for advanced work in engineering, medicine, dentistry, pharmacy, or other sciences for which some training in physics is required, undergraduates who develop special interest in the subject and major in it in order to become teachers, research workers, or industrial workers in some of the newer fields of applied physics, and graduate students who are either candidates for the master's degree or the doctorate in physics as a preparation for more highly specialized teaching, research, or industrial development. Entering students who have shown any aptitude for work in science and are likely to go beyond the most elementary courses in physics should take Mathematics 22:4 and 22:5 in their first year. Only by so doing will they be prepared in time for the more advanced work that they may wish to take later.

Career Opportunities

There are many opportunities open to the holders of advanced degrees in physics both in college and university teaching and research in government and industrial laboratories. Developments in pure and applied science since 1940 have opened up many new opportunities for work in government laboratories and a wide variety of industries to students with the bachelor's degree or some degree of specialization in physics.

Non-Science Students

The core course, Introduction to Physical Science, 11:25 and 11:26, is intended for students who plan to devote most of their time to study in fields other than physics or chemistry and do not have time for more than a brief glimpse of these subjects. Since there are no prerequisites for this course it is necessarily extremely elementary and cannot go into any part of the subject very thoroughly. Those who desire a more thorough and systematic intro-

duction to physics should take 29:1 and 29:2. Some of these will wish to go on to an introduction to atomic and nuclear physics by continuing with 29:3.

Pre-medical and Pre-dental Students

Completion of 29:1 and 29:2 satisfies the pre-medical and pre-dental requirements in physics. These courses are regularly given in the summer session as well as in the regular session.

Students Majoring in a Science Other than Physics

Such students ordinarily take 29:1 and 29:2 or 29:7 and 29:8 if their subject is one for which a knowledge of physics is advantageous. Consideration should also be given to 29:3 because of the importance of the newer developments in atomic and nuclear physics and their application in many other scientific fields. The selection of further courses varies according to the student's major. The department is glad to discuss their programs with interested students.

Undergraduate Majors in Physics

The requirements for the bachelor's degree with a major in physics are based on the belief that the student who majors in physics, no matter what his plans for the future may be, needs to have a good foundation in both classical and modern physics, in chemistry, and in mathematics. He should also have had some experience with work of a more advanced sort in the two most fundamental branches, mechanics and electricity.

The undergraduate major in physics must, therefore, complete the following:

- Physics 29:1 and 29:2 or 29:7 and 29:8.
- Mathematics through integral calculus.
- Chemistry 4:1 or equivalent.
- College Physics (Atomic and Nuclear) 29:3.
- Elementary Theoretical Mechanics 29:139.
- Electricity and Magnetism 29:129 and 29:130.
- Six hours of electives in physics.

It should be emphasized that the above program constitutes a bare minimum for the bachelor's degree with a major in physics. The student who plans to become a professional physicist should take the basic courses in physics, mathematics, and chemistry as early in his college career as possible.

During the junior and senior years the student should take, in addition to the specified courses above, the second semester of Elementary Theoretical Mechanics, 29:140, and as many of the following courses as his program will allow: Advanced Calculus, 22:117; Electrical Measurements: Electronics, 29:128; Optics, 29:117; Heat and Thermodynamics, 29:118; Atomic and Nuclear Physics Laboratory, 29:133 and 29:134.

Undergraduates majoring in physics are strongly advised to take at least an introductory course in German or in Russian and if possible to continue until they have acquired some facility in reading that language.

Honors work in Elementary Physics, 29:5, 29:6, is available for students of high aptitude and interest. Selected junior and senior majors may take up to 8 semester hours of Honors Seminar 29:99 and thereby qualify for the degree Bachelor of Arts with Honors.

For the general requirements of the College of Liberal Arts, see *College of Liberal Arts*.

Advanced Degrees in Physics

Three advanced degrees in physics are given, the Master of Arts, the Master of Science, and the Doctor of Philosophy. The graduate student becomes a candidate for an advanced degree only after he has passed an examination covering work in all the principal

branches of physics at the level of advanced undergraduate work. This examination normally is taken during the first year of graduate study. For the general requirements for admission to the Graduate College, see *Graduate College*.

The Master's Degree in Physics

The M.S. in physics is intended for students who may wish either to continue to the Ph.D. degree or to take up other professional work for which training in research is needed. A thesis based on the candidate's own research is required for this degree. The M.A. in physics is intended primarily for prospective teachers or others who wish to get a well-rounded understanding of the subject but do not intend to go on in research. A thesis based on original research is not required for this degree, although some independent work is required. The student entering upon either of these programs is normally expected to have had at least twenty-two semester hours in physics in his undergraduate course, at least eight of these being in advanced courses that make free use of calculus, and at least four semester hours of college chemistry. In some cases students with less previous training in physics and chemistry can be admitted to graduate work with the intention of getting a master's degree, but a longer period of study will be necessary because of the deficiency.

Master of Science Degree. The candidate for the M.S. degree is expected to get a general knowledge of classical and modern physics at a level beyond that of introductory courses and to extend his knowledge in higher mathematics beyond differential and integral calculus. To implement this provision the candidate should take or have taken as an undergraduate *at least* the following courses or their equivalent:

29:3	College Physics (Atomic and Nuclear)	3 s.h.
29:117	Optics	4 s.h.
29:118	Heat and Thermodynamics	3 s.h.
29:129, 29:130	Electricity and Magnetism	8 s.h.
29:133	Atomic and Nuclear Physics Laboratory	2 s.h.
29:139, 29:140	Elementary Theoretical Mechanics	6 s.h.
29:191, 29:192	Modern Physics	6 s.h.
and at least 6 hours from the following:		
29:171	Methods of Theoretical Physics	5 s.h.
22:117	Advanced Calculus	3 s.h.
22:118	Definite Integrals	3 s.h.
22:121	Algebra of Matrices	3 s.h.
22:141	Differential Equations	3 s.h.

or any mathematics course numbered 200 or above.

He is expected to write a thesis based on his own research.

At least 24 semester hours of regular graduate courses, exclusive of the thesis, are required. The candidate will be expected to pass an oral examination on the substance and background of his research.

Candidates for the M.S. degree will find it profitable to study either Russian or German in preparation for more advanced work.

Master of Arts Degree. For the M.A. in physics the following requirements must be satisfied:

A total of at least thirty-eight semester hours in physics beyond the introductory course (these thirty-eight hours include both undergraduate and graduate courses). (This requirement of thirty-eight hours in physics should not be confused with the general requirement of thirty-eight graduate hours.) The following courses or their equivalent must be included:

29:3	College Physics (Atomic and Nuclear)	3 s.h.
29:117	Optics	4 s.h.
29:118	Heat and Thermodynamics	3 s.h.
29:139, 29:140	Elementary Theoretical Mechanics	6 s.h.
29:129, 29:130	Electricity and Magnetism	8 s.h.
29:220	Individual Critical Study	4 s.h.

Individual Critical Study involves preparation of a critical essay on recent work in some one field, the essay to be based on the

student's independent study of the literature.

A course in differential equations of at least three semester hours. At least twelve semester hours of advanced courses in some related minor field approved by the Department of Physics. (For example, Chemistry 4:131 and 4:132, Physical Chemistry; Mathematics, 22:128, Topics in Engineering Mathematics: 22:165 and 22:166. Introduction to Mathematical Statistics; Philosophy, 26:209 and 26:210, Philosophy of Science.) No more than six of these hours may be allowed for courses taken as an undergraduate.

The candidate is expected to pass an oral examination in general physics and on the substance and background of his individual study project. In no case will the M.A. degree in physics be granted to a candidate with less than thirty-eight semester hours of graduate credit. The grade-point average for all graduate work must be 2.5 or better.

The Degree of Doctor of Philosophy in Physics

The candidate for the degree of Doctor of Philosophy in physics is expected to have demonstrated a broad and thorough knowledge of all branches of physics by passing a comprehensive general examination and to have demonstrated his capacity for doing independent work and gaining mastery of a special field by his own research that culminates in the writing of a satisfactory doctoral dissertation.

Emphasis is laid on the capabilities developed and the knowledge gained rather than on the particular courses taken, credits acquired, or other incidental aspects of the means to the end.

Although no particular courses are required, the ones that nearly all candidates for the doctor's degree will take in preparation for the comprehensive examinations are the classical theoretical physics sequence, 29:211, 29:212, 29:213, 29:214; Atomic and Molecular Spectroscopy, 29:231; Quantum Mechanics, 29:247 and 29:248; and Nuclear Physics, 29:249 and 29:250. Advanced mathematics such as the theory of functions of a complex variable and vector and tensor analysis are freely used in these courses. An introduction to these fields is given in Methods of Theoretical Physics, 29:171. The selection of less advanced courses will depend on the adequacy of the student's preparation for graduate work; his choice of more advanced and specialized courses will depend on the direction in which his interests develop.

Before a candidate is admitted to the comprehensive examinations he must acquire and demonstrate to the appropriate foreign language department the ability to read papers on physics in German and in one of the following three other languages—French, Russian, and Italian.

Each candidate must present and defend an original proposition of a research or speculative nature as a part of his comprehensive examination.

A candidate for the Ph.D. degree will not be admitted to the final examination until he has written his dissertation in proper form for formal publication and has submitted it, with the approval of his research adviser, for publication to a standard scientific journal of wide distribution.

Research Facilities

The department has excellent laboratory and library facilities. Active research programs exist in nuclear physics, cosmic rays, atmospheric physics, and in theoretical quantum electrodynamics and theoretical nuclear physics.

Qualified graduate students are invited to apply for fellowships and assistantships. Inquiries should be directed to the departmental office.

STAFF

Professors: James A. Jacobs, Josef M. Jauch,* E. P. T. Tyndall, James A. Van Allen.

*On leave of absence 1958-59.

Professor Emeritus: John A. Eldridge.

Associate Professors: Fritz Coester, Edward B. Nelson, Fritz Rohrlich,* Richard R. Carlson.

Assistant Professors: Kinsey A. Anderson, Stanley Bashkin, Francis T. Cole,* Frank B. McDonald, Ernest C. Ray.

Research Associates: Cyril Broude, Herman Kummel, Pamela Rothwell.

Eastman Kodak Research Fellow: Ernest A. Thieleker.

U.S. Steel Foundation Research Fellow: George H. Ludwig.

Graduate Research and Teaching Assistants: Mr. John E. Bergeson, Mr. Laurence J. Cahill, Mr. Jack Cohn, Mr. Barney J. Conrath, Mr. Howard J. Cyr, Mr. Raymond H. Cyr, Mr. Wayne B. Day, Mr. David Dittmer, Mr. John W. Freeman, Mr. Arthur D. Goedeke, Mr. Harvey Groskreutz, Mr. Gary Hockey, Mr. Charles E. Hornback, Mr. Richard Jann, Mr. Chong Chol Kim, Mr. Curtis D. Laughlin, Mr. Joseph Lenguadoro, Mr. Wei Ching Lin, Mr. Samuel C. Ling, Mr. Robert H. Lynch, Mr. Carl E. McIlwain, Mr. Dean E. McKinnis, Mr. David L. Porter, Mr. Hari K. Raut, Mr. Howard Rattner, Mr. Herbert H. Sauer, Mr. Donald E. Simanek, Mr. Daniel R. Smith, Mr. Joseph C. Stoltzfus, Mr. John I. Valerio, Mr. Dallas W. Werner, Miss Sekiko Yoshida.

Librarian: Mr. Gerald M. Stevenson.

COURSE DESCRIPTIONS

Primarily for Undergraduates

29:1 College Physics 4 s.h.

Open to freshmen. Descriptive lectures and laboratory work in elementary physics. Mechanics, heat, and sound. Prerequisite, at least one year of work each in high school algebra and geometry. First semester. Instructor: Nelson.

29:2 College Physics 4 s.h.

Electricity, magnetism, and light. A continuation of 29:1, which is prerequisite. Second semester. Instructor: Nelson.

29:3 College Physics (Atomic and Nuclear) 3 s.h.

A continuation of 29:2 devoted to electronic, atomic, and nuclear phenomena. Emphasis on experimental rather than mathematical aspects. Of interest to all who wish introduction to more recent developments in the subject. Prerequisites, 29:1 and 29:2, or 29:7 and 29:8. Instructor: Bashkin.

29:5 Honors Work in Elementary Physics 2 s.h.

Enrollment limited to top-ranking students in 29:1 and 29:7. Discussion sessions with active participation by individual students. Instructor: Ray.

29:6 Honors Work in Elementary Physics 2 s.h.

Enrollment limited to top ranking students in 29:2 and 29:8. Instructor: Ray.

29:7 General Physics: Mechanics, Wave Motion, Sound, and Heat 5 s.h.

Laboratory and lecture once each week, recitations and problems four times. Prerequisite or corequisite, Mathematics 22:6. Required of all students in engineering; open to others who have prerequisite mathematics. Both semesters. Instructor: Jacobs.

29:8 General Physics: Electricity, Magnetism, Light 5 s.h.

A continuation of 29:7, which is prerequisite. Both semesters. Instructor: Tyndall.

*On leave of absence 1958-59.

29:77 *Methods in High School Science* 3 s.h.
Both semesters. Same as Education 7:70.

29:93 *Individual Reading* cr.arr.
Primarily for those wishing to prepare for advanced courses who are unable to do so by enrollment in regular courses.

29:99 *Honors Seminar* 1 or 2 s.h.
For junior and senior Honor candidates majoring in physics. Guidance in conducting original scholarly investigations. May be repeated. Staff.

For Undergraduates and Graduates
Course for which calculus is not prerequisite:

29:103 *Individual Reading* cr.arr.
Individual assignments in any field of physics. For those wishing to prepare for advanced courses, who are unable to do so through regular courses.

Courses that presuppose a working knowledge of
differential and integral calculus and completion
of 29:1 and 29:2 or 29:7 and 29:8

29:117 *Optics* 4 s.h.
An introductory course in geometrical and physical optics. Lectures and laboratory exercises on the properties of lenses and simple optical instruments, phenomena of interference, diffraction and polarization, photometry and illumination, absorption and color. Three recitations and one laboratory period. Instructor: Tyndall.

29:118 *Heat and Thermodynamics* 3 s.h.
Macroscopic description of thermal phenomena. The fundamental laws of thermodynamics and their application.

29:126 *Electrical Measurements* 3 s.h.
For electrical engineers. One lecture, one laboratory, and one report each week. Second semester.

29:128 *Electrical Measurements: Electronics* 3 s.h.
Characteristics of vacuum tubes and measurements on circuits using vacuum tubes. First semester. Prerequisite, 29:129. Instructor: McDonald.

29:129 *Electricity and Magnetism* 4 s.h.
Fundamental principles. Three lectures and one laboratory. First semester. Instructors: Van Allen, Anderson.

29:130 *Electricity and Magnetism* 4 s.h.
Continuation of 29:129, which is prerequisite. Three lectures and one laboratory. Second semester. Instructors: Van Allen, Anderson.

29:133 *Atomic and Nuclear Physics Laboratory* 2 s.h.
Advanced laboratory study of the fundamental atomic constants, radio-active decay, and cosmic rays. Two laboratory periods each week. Prerequisites, 29:3 and 29:129. First semester. Instructor: Anderson.

29:134 *Atomic and Nuclear Physics Laboratory* 2 s.h.
Second semester. 29:133 is not prerequisite. Instructor: Anderson.

29:135 *Atomic Physics* 2 s.h.
Brief introduction to atomic structure and nuclear phenomena, pri-

marily for students in engineering; open to others only by special permission. (See 29:3.) Second semester. Instructor: Bashkin.

29:139 *Elementary Theoretical Mechanics* 3 s.h.
Same as Mathematics 22:139. Instructor: Oberg.

29:140 *Elementary Theoretical Mechanics* 3 s.h.
Same as Mathematics 22:140. A continuation of 29:139, which is prerequisite. Instructor: Oberg.

29:152 *Classical Mechanics* 3 s.h.
Dynamics of mass points and rigid bodies on the basis of Lagrange's and Hamilton's equations. Small oscillations; theory of the top. Hamilton-Jacobi theory; canonical transformations; action and angle variables. Applications include relativistic mechanics. Prerequisites, 29:139 or equivalent and vector analysis. Instructor: Carlson.

29:171 *Methods of Theoretical Physics* 5 s.h.
Vector and tensor analysis, linear algebra, theory of analytic functions of a complex variable and other mathematical developments used in theoretical physics. Instructor: Coester.

29:191 *Modern Physics* 3 s.h.
Systematic development of present concepts of relativity, atomic and nuclear physics. Emphasis on physical principles rather than formal mathematical theory. Prerequisite, senior standing in physics or equivalent. Instructor: Bashkin.

29:192 *Modern Physics* 3 s.h.
Continuation of 29:191. Instructor: Bashkin.

Primarily for Graduates

29:211 *Classical Theoretical Physics I*
Mechanics of Continua 3 s.h.
Hydrostatics, dynamics of ideal fluids, both incompressible and compressible; viscous flow; the classical theory of elasticity. Prerequisites, 29:139 and 29:171 or the equivalent. Given in 1957-58 and alternate years thereafter. Instructor: Coester.

29:212 *Classical Theoretical Physics II*,
Kinetic Theory and Statistical Mechanics 3 s.h.
Elementary kinetic theory of ideal and non-ideal gases. General principles of classical and quantum statistical mechanics. Systems of identical particles. Applications. Prerequisites, 29:118, 29:139, 29:140 and 29:171 or the equivalent. Given in 1958-59 and alternate years thereafter. Instructor: Ray.

29:213 *Classical Theoretical Physics III*,
Electromagnetic Theory 3 s.h.
Basic principles of electrodynamics. Derivation of the phenomena from Maxwell's equations. Maxwell's theory for moving bodies. Prerequisites, 29:129 and 29:171 or the equivalent. Given in 1958-59 and alternate years thereafter. Instructor: Coester.

29:214 *Classical Theoretical Physics IV*,
Optics and Electron Theory 3 s.h.
Geometrical and wave optics. Interference and polarization of light. Theory of diffraction. Crystal optics. Emission and absorption of radiation. Electron theory of optical properties. Prerequisites, 29:129 and 29:171 or equivalent. Given in 1957-58 and alternate years thereafter. Instructor: Rohrllich.

29:220 *Individual Critical Study* cr.arr.
An essay is to be written on some topic chosen in consultation with head of department. For M.A. candidates.

- 29:231 *Atomic and Molecular Spectroscopy* 3 s.h.
 Various aspects of theoretical and applied spectroscopy. Classification and interpretation of optical and microwave spectra. Prerequisites, 29:191, 29:192, and 29:247 or equivalent. Instructor: Rohrllich.
- 29:247 *Quantum Mechanics* 3 s.h.
 Non-relativistic wave mechanics of one and two particle systems. Prerequisites, 29:171, 29:191, and 29:192. Instructor: Coester.
- 29:248 *Quantum Mechanics* 4 s.h.
 Foundations of general quantum mechanics, the relativistic theory of the electron, quantum mechanics of many particle systems. Continuation of 29:247, which is prerequisite. Instructor: Coester.
- 29:249 *Nuclear Physics* 3 s.h.
 Advanced course in phenomena of nuclear physics and their interpretation. Prerequisites, 29:191 and 29:192. Pre- or corequisite, 29:247. Instructor: Jacobs.
- 29:250 *Nuclear Physics* 3 s.h.
 Continuation of 29:249, which is prerequisite. Instructor: Jacobs.
- 29:261 *Colloquium* no cr.
 One hour per week throughout year. Open to all.
- 29:265 *Seminar: Theoretical Physics* cr.arr.
 Discussion of current research. Instructors: Jauch, Coester, Rohrllich, Ray.
- 29:269 *Theoretical Nuclear Physics* 3 s.h.*
 Nuclear forces, two body problems, nuclear models, electromagnetic properties of nuclei, theory of nuclear reactions, γ -decay, β -decay. Prerequisites, 29:249 and 29:250. Instructor: Carlson.
- 29:270 *Theoretical Nuclear Physics* 2 s.h.
 Continuation of 29:269.
- 29:273 *Relativity* 3 s.h.
 Relativistic formulation of mechanics and electrodynamics; Einstein's theory of gravitation. Instructor: Rohrllich.
- 29:276 *Special Topics in Quantum Mechanics* 3 s.h.
 Selection of special topics in advanced quantum theory. The topics selected vary from year to year. May be repeated. Instructor: Jauch.
- 29:277 *Cosmic Rays - Solar - Terrestrial* 3 s.h.
 Interactions of high energy radiations with matter, cascade showers, unstable particles, geomagnetic theory, and primary radiation. Lectures and study of original literature. Instructor: Van Allen or Ray.
- 29:281 *Research* cr.arr.
 Prerequisite consent of head of department. May be continued for an indefinite number of semesters and in the summer. Staff.
- 29:290 *Physics and Chemistry of the Upper Atmosphere* 2 s.h.
 Continuous and molecular physics of neutral and ionized gases. Absorption of solar radiation; its ionizing and dissociative effects in relation to ionosphere ozone layer and chemical processes in upper atmosphere. The air glow and aurora. Tides and winds in ionosphere and electric currents associated with daily magnetic variations and magnetic storms. Instructor: Ray.

FOR FURTHER INFORMATION

INFORMATION FOR PROSPECTIVE STUDENTS. This small booklet gives condensed general information concerning University colleges, schools, and other units. Also included: information on admission, fees, scholarships, student aid, housing, and student personnel services.

DESCRIPTIVE BOOKLETS. These booklets are available in the following fields: Commerce, Dental Hygiene, Engineering, Fine Arts, Home Economics, Hospital Administration, Humanities, Journalism, Languages, Liberal Arts, Medical Technology, Pre-mortuary Science, Museum Training, Nursing, Pharmacy, Physical Education (Men), Physical Education (Women), Sciences, Social Work, Speech, Dramatic Arts and Television, "Living at Iowa," "Your Home at SUI," and Employment, Scholarships and Loans.

CATALOGUE SECTION REPRINTS. Sections of the General University Catalogue (similar to this booklet) pertaining to the following areas of study are available in reprint form: Colleges—Commerce, Dentistry, Education, Engineering, Liberal Arts, Graduate, Law Medicine, Nursing, and Pharmacy. Schools and Departments—American Civilization, Art, Botany, Chemistry, Child Welfare, English, European Literature and Thought, Geography and Geology, History, Home Economics, Journalism, Languages, Mathematics and Astronomy, Music, Oriental Studies, Philosophy, Physical Education (Men), Physical Education (Women), Physics, Political Science, Psychology, Religion, Social Work, Sociology and Anthropology, Speech, Dramatic Arts, and Television, Speech Pathology and Audiology, Zoology, and Health Services.

TO OBTAIN INFORMATION on any of the above fields or application forms for admission, write the Director of Admissions, University Hall, State University of Iowa, Iowa City.

FOR INFORMATION about married student or dormitory housing and application forms, write the Dormitory Assignment Office, University Hall, State University of Iowa, Iowa City. For information about off-campus housing, scholarships, loans, and student employment, write the Office of Student Affairs, University Hall, State University of Iowa, Iowa City.