Walla Walla College

Graduate Bulletin 1969 - 70

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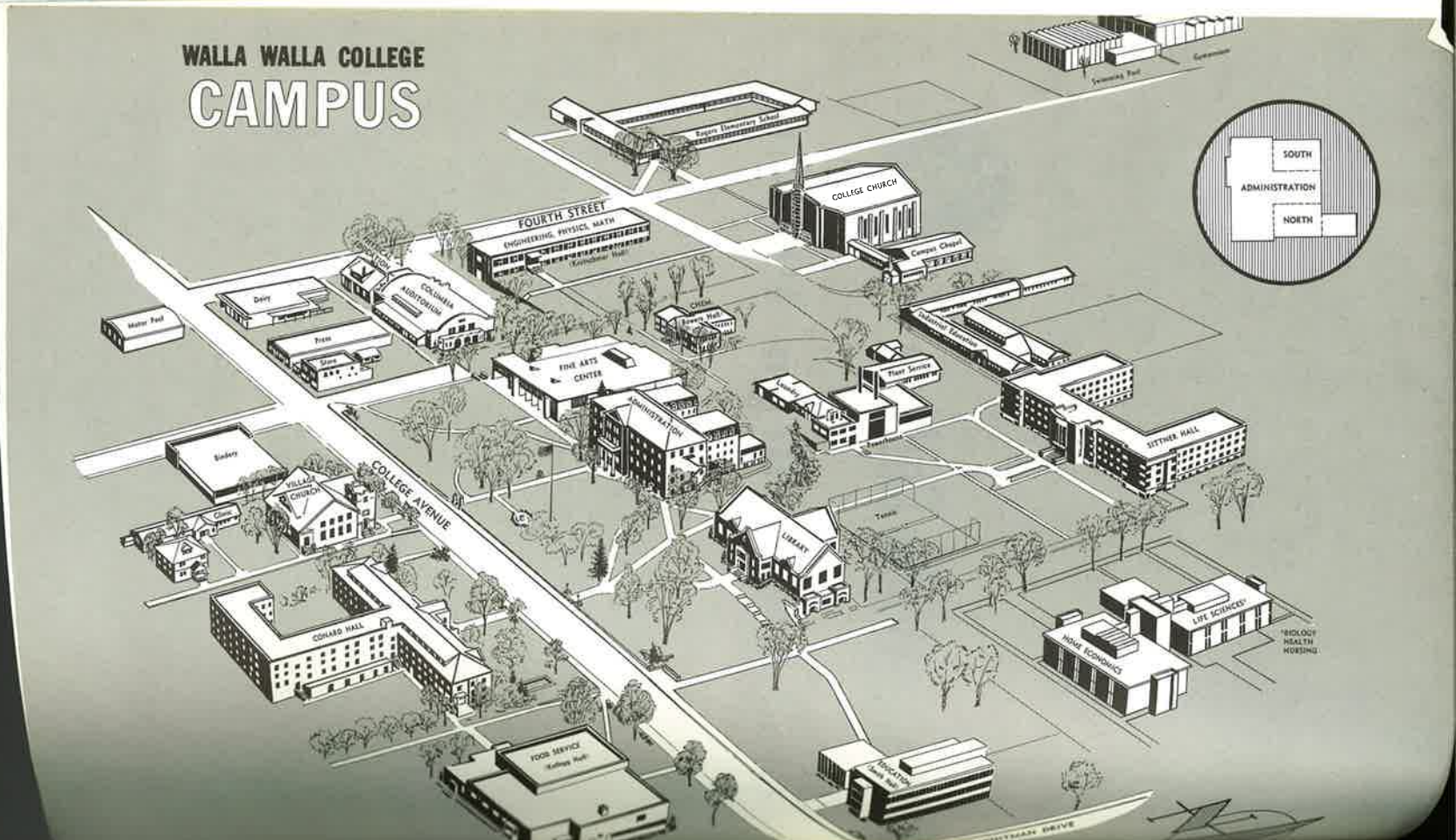
WALLA WALLA COLLEGE
CAMPUS



WALLA WALLA COLLEGE GRADUATE BULLETIN '69-'70

The College is Accredited by

The Northwest Association of Secondary and Higher Schools

The Washington State Board of Education

Department of Baccalaureate and Higher Degree Programs of the National League for Nursing

National Association of Schools of Music

is a member of

Association of American Colleges

Association of Seventh-day Adventist Colleges and Secondary Schools

Council of Member Agencies, Department of Baccalaureate and Higher Degree Programs of the National League for Nursing

American Council on Education National Commission on Accreditation

American Association of Colleges for Teacher Education

is approved by

U.S. Government for the training of veterans under the G.I. Bills 550 and 894

The Attorney General of the United States for nonimmigrant students

Washington State for training in Vocational Rehabilitation

WALLA WALLA COLLEGE BULLETIN
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FOR INFORMATION

Concerning general information, bulletins, application blanks, view-books, student handbooks, write

The Registrar

Concerning the graduate programs, teaching and research assistant-ships, special credentials, write

Chairman, The Graduate Council or

Chairman, Department involved

Concerning work, financial arrangements, and apartments, write

Director, Student Finance

Concerning room reservations and other matters of residence, write

The Dean of Men or

The Dean of Women

WALLA WALLA COLLEGE
College Place, Washington 99324

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Area Code 509

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CALENDAR, 1969-1970

AUTUMN QUARTER

September 21-23	Registration
September 24—Wednesday	Instruction begins, 7:30 a.m.
October 8—Wednesday	Last day to add a course
October 22—Wednesday	Last day to drop a course
October 29, 30	Graduate Record Examinations
November 26, 1:00 p.m.-Nov. 30, 10:00 p.m.	Thanksgiving Recess
December 1-5	Registration for Winter Quarter
December 15-17	Final Examinations
December 17	Quarter Ends
December 18-January 4, 10:00 p.m.	Christmas Recess

WINTER QUARTER

January 5 and 6	Registration of New Students
January 5	Instruction begins, 7:30 a.m.
January 19—Monday	Last day to add a course
February 2—Monday	Last day to drop a course
March 1-5	Registration for Spring Quarter
March 16-18	Final Examinations
March 18	Quarter Ends
March 18, 1:00 p.m.-March 22, 10:00 p.m.	Spring Recess
March 22	Last day to file master's degree order form

SPRING QUARTER

March 23, 24	Registration of New Students
March 23	Instruction begins, 7:30 a.m.
March 25, 26	Graduate Record Examinations
April 6—Monday	Last day to add a course
April 20—Monday	Last day to drop a course
May 22	Last day to complete final master's examinations
June 2-4	Final Examinations
June 5	Consecration
June 6	Baccalaureate
June 7	Quarter Ends
June 7	Commencement

SUMMER SCHOOL, 1970

June 15-August 9	
June 15	Last day to file master's degree order form
July 24	Last day to complete final master's examinations
August 9	Graduation

THE DIRECTORY

BOARD OF TRUSTEES

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Robert H. Brown, Ph. D. ..... Vice President, Student Affairs
Vernon H. Siver, B. A. ..... Vice President, Financial Affairs
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Orpha N. Osborne, B. A. ..... Registrar
Elwood L. Mabley, M. S. in L.S. ..... Director of the Library
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Hannah R. Hagstotz, M. A. ..... Dean of Women
Gordon S. Balharrie, B. D. ..... Dean, School of Theology
Wilma L. Leazer, M. S. ..... Dean, School of Nursing

ASSOCIATES IN ADMINISTRATION

Andrews, Kathryn; B. A. ..... Assistant Registrar
Beck, Richard A.; B. A. ..... Director, Student Finance
Hellie, Lois M.; B. A. ..... Chief Accountant
Losey, Jimmie D.; M. D. ..... College Physician
Masden, Glenn W.; M. S. E. E. ..... Coordinator, Data Processing

ADMINISTRATIVE COUNCIL

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GRADUATE COUNCIL

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THE FACULTY

BIOLOGY

RIGBY, DONALD W., Professor of Biology, Department Chairman
B. A., 1950, La Sierra College; M. A., 1956, Walla Walla College; Ph. D., 1967, Loma Linda University

CLAYTON, DALE L., Assistant Professor of Biology
B. A., 1962, Andrews University; M. A., 1964, Loma Linda University; Ph. D., 1968, Michigan State University

FORSS, CARL, Assistant Professor of Biology
B. A., 1958, Walla Walla College; M. A., 1959; Ph. D., 1965, Oregon State University

GRABLE, ALBERT, Assistant Professor of Biology
B. S., 1959, La Sierra College; M. S., 1962, Ph. D., 1964, University of Minnesota

PERRY, ALFRED E., Associate Professor of Biology
B. A., 1953, Walla Walla College; M. A., 1958, Walla Walla College; Ph. D., 1965, Oklahoma State University

EDUCATION AND PSYCHOLOGY

CHACE, E. STANLEY, Professor of Education, Department Chairman
B. Th., 1948, Atlantic Union College; M. Ed., 1958, University of Chattanooga; Ed. D., 1960, University of Tennessee

CALLENDER, LYNN R., Assistant Professor of Education
B. Th., 1945, Walla Walla College; Ed. M., 1958, Temple University; Ed. D., 1966, Arizona State

GIBBONS, C. KEITH, Assistant Professor of Education
B. A., 1960, M. A., 1966, Walla Walla College; Ed. D., 1969, University of Idaho

MABERLY, NORMAN C., Professor of Education
B. Th., 1952, Walla Walla College; M. A., 1954, Andrews University; Ed. D., 1962, University of Southern California

OCHS, HAROLD T., Assistant Professor of Education
B. A., 1950, Walla Walla College; M. Ed., 1957, Eastern Washington State College

TEEL, LOIS FLORETTA, Associate Professor of Education
B. A., 1947, Emmanuel Missionary College; M. Ed., 1959, University of Oregon

WAGNER, DALE O., Assistant Professor of Education
B. A., 1952, Walla Walla College; M. A., 1958, Eastern Washington State College

SUPPORTING DEPARTMENTS, CHAIRMEN

BALHARRIE, GORDON S., Professor of Religion
B. A., 1945, Columbia Union College; M. A., 1949, B. D., 1960, Theological Seminary, Andrews University

BARNETT, CLAUDE C., Professor of Physics
B. S., 1952, Walla Walla College; M. S., 1956, State College of Washington; Ph. D., 1960, Washington State University

CROSS, EDWARD F., Professor of Engineering
M. E., 1929, Stevens Institute of Technology; M. A., 1938, Columbia University; P. E., 1948, Washington; P. E., 1952, Oregon

DICKINSON, C. LOREN, Associate Professor of Speech
B. A., 1957, Union College; M. A., 1960, University of Nebraska; Ph. D., 1968, University of Denver

EVANS, HELEN WARD, Professor of English
B. A., 1949, Walla Walla College; M. A., 1955, Ph. D., 1965, Stanford University

HARE, GORDON B., Professor of Mathematics
B. A., 1951, Columbia Union College; M. S., 1954, Ph. D., 1964, University of Colorado

HENDERSON, ROBERT A., Associate Professor of History
B. A., 1962, Walla Walla College; Ph. D., 1967, Washington State University

JONES, CARL T., Professor of Chemistry
B. A., 1933, Columbia Union College; M. S., 1939, Catholic University of America; Ph. D., 1959, Oregon State College

MEHLING, J. G., Professor of Business and Economics
B. B. A., 1934, Walla Walla College; M. A., 1947, University of Washington; C. P. A., 1947, State of Washington

MOORE, ROBERTA J., Professor of Journalism
B. A., 1948, Atlantic Union College; M. A., 1953, Boston University; Ph. D., 1968, Syracuse University

WEST, MELVIN K., Professor of Music
A. B., 1952, Emmanual Missionary College; M. Mus., 1955, Redlands University; Mus. A. D., 1959, Boston University; F. A. G. O., 1957

WINTER, EUGENE S., Professor of Physical Education
B. A., 1941, Walla Walla College; M. S., 1948, State College of Washington; Ph. D., 1963, University of Oregon

GENERAL INFORMATION

WALLA WALLA COLLEGE is a Christian institution of higher learning operated by the Seventh-day Adventist Church.

The College is located in the City of College Place in the historic fertile Walla Walla valley of southeastern Washington. The old Oregon Trail near the campus leads to the site of the old mission which was directed by Marcus Whitman from 1836 to 1847, and which has been reconstructed by the federal government as the Whitman Mission. The scenic Blue Mountains to the east are but a few minutes' drive from the campus and offer unusual opportunities for recreation and relaxation.

The principal objectives of the College are the fostering of an intelligent understanding and devotion to Christian ideals, loyalty to God and service to humanity, and the offering of an educational experience encouraging the formation of character marked by a full, harmonious development of the intellectual, physical, and spiritual powers.

The seventh-day sabbath is observed at Walla Walla College from sunset Friday to sunset Saturday. No instructional activities are conducted during these hours.

ACCREDITATION

The College is accredited by the Northwest Association of Secondary and Higher Schools and the Washington State Board of Education and is a member of the American Association of Colleges for Teacher Education, Association of American Colleges, Association of Seventh-day Adventist Colleges and Secondary Schools, and the American Council on Education National Commission on Accreditation.

DEGREES OFFERED

The College offers courses of study leading to the Master of Arts and Master of Education degrees. The former degree is a thesis program and the latter is a non-thesis program.

ADMINISTRATION

The master's degree programs are directed and supervised by the Graduate Council, which is the legislative body responsible for the formulation of all graduate academic policies and curricula.

GRADING SYSTEM

The following system of grades and grade-point values is used in graduate studies:

A—	4 grade points per credit
B—	3
C—	2
D—	1
F—	0

GRADUATE FACILITIES

Life Sciences Complex

The Department of Biology facilities in the Life Sciences Complex completed in 1967 include staff and graduate student offices, classrooms, and teaching laboratories, controlled environment rooms and chambers, radioisotope laboratory, animal and greenhouse complexes, photographic darkroom, museum, and a shop.

Marine Biological Station

Additional Department of Biology facilities occupy 40 acres of beach and timberland at Rosario Beach adjoining Deception Pass State Park, Anacortes, Washington. The physical plant includes four laboratory buildings, a cafeteria, an assembly hall, shop, and 29 cabins for student and staff housing.

Smith Hall

The Department of Education is housed in a modern, air-conditioned, three-story building. Facilities include offices for staff and graduate assistants, laboratories for testing, psychology, and audio-visual productions, observation rooms, a tiered lecture hall, a curriculum library, classrooms and seminar rooms, and an audio-visual and instructional materials center containing workrooms, a photographic darkroom, an offset pressroom, and a closed circuit television center.

Library

The College Library is a vital part of the educational program at Walla Walla College. The main library building was completed in 1944 and remodeled in 1964. Reading room accommodations, the open-shelf system, seminar and conference rooms, and a modern, comfortable, periodical room contribute to the study and enjoyment of books and journals. Microfilm and microcard readers make microfilms of scholarly material accessible. The curriculum library, located in Smith Hall, contains a large selection of textbooks, children's literature books, a collection of over 3,000 mounted pictures, filmstrips, tapes and phonorecords. The combined libraries contain in excess of 100,000 volumes. An average of 5,600 volumes is accessioned annually. There are about 980 current periodicals received regularly. Resources in other libraries are available to students and faculty members through the library's membership in the Pacific Northwest Bibliographic Center which serves as a clearinghouse for interlibrary loans.

FINANCIAL INFORMATION

Payments Required to Register

An advance payment of $250 plus any balance due from a previous quarter shall be paid at the time of registration. Part-time students shall pay the full tuition charge in advance if less than $250.

Tuition

1-12 credits	$36 (per credit)

The tuition includes all laboratory fees and a registration fee; and for students registered for six or more credits, it includes Student Association, student insurance, and lyceum tickets.

Regular tuition is charged for auditing classes and triple tuition is charged for individual tutoring.

Special Fees

Degree, Master's	$25	(includes thesis binding,
Degree, Master's *in absentia*	35	rental of cap, gown and hood)

Refunds

A student withdrawing from classes during the quarter will receive the following tuition refunds:

90% during first week of quarter
75% between first and third weeks
50% between third and sixth weeks
No tuition refunded after sixth week

Graduate Assistantships

A limited number of graduate assistantships are available to provide students with an opportunity for professional experiences in their chosen fields of specialization or in activities that may be valuable in preparing them more fully for their future occupational roles.

Assistantships are open to both men and women with evidence of sufficient maturity and potential to benefit from the program. Applications will be considered from prospective graduate students, postgraduates, and those already admitted as regular graduate students. The stipends are awarded for periods up to 12 months, plus full remission of tuition and fees for approved courses during the period of the assistantship.

Duties of an assistant may include participation in research, instructional and guidance services, and professional activities. Application forms for graduate assistantships may be obtained by writing directly to the chairman of the Department of Biology or to the chairman of the Department of Education and Psychology. Applications must be submitted before April 15.

Loans

The following loan funds are recommended and applications may be obtained from the Student Finance Office:

California State Scholarship and Loan Commission: California State residents may borrow up to $1,000 per year under this plan, if they are

accepted for enrollment or are enrolled in good standing and carrying a full-time course of study. Applications are available in the Student Finance Office, or may be obtained from California State Scholarship and Loan Commission, 520 Capitol Mall, Sacramento, California 95814.

Federally Insured Loans: Many banks are offering the Federally Insured loans to college students. These are long-term, low-interest loans that need not be repaid until a student completes his course of study. Consult the loan officer of your bank for additional information.

National Defense Education Loan: National Defense Loan is made available through the Federal Government and Walla Walla College. Repayments begin after the applicant's student status terminates. Applications for this aid must be received in the Student Finance Office no later than August 15, 1969.

Oregon State Scholarship Commission: Oregon State residents may borrow up to $1,000 per year under this plan, if they are accepted for enrollment or are enrolled in good standing and carrying a full-time course of study. Applications are available in the Student Finance Office, or may be obtained from Oregon State Scholarship Commission, P.O. Box 3175, Eugene, Oregon 97403.

United Student Aid Fund: Arrangements can be made through Walla Walla College and your local bank to obtain funds at a low rate of interest. These funds can be obtained without collateral and are repaid after graduation. Not all banks participate in this program. You should consult the Loan Officer of your bank for their policies regarding this loan fund.

GRADUATE PROGRAM

MASTER'S degree programs are offered in the Department of Biology, and in the Department of Education and Psychology. Graduate study is planned in reference to the student's experience, future objectives, personal qualifications, and previous academic preparation. The importance of careful planning and close cooperation between the student and his assigned adviser is emphasized.

OBJECTIVES OF THE GRADUATE PROGRAM

The program provides an atmosphere which stimulates intellectual curiosity and independent thinking. It strives to develop an appreciation of the value of research and an acquaintance with basic research techniques. It endeavors to strengthen the professional competence of the individual in his area of specialization.

ADMISSION TO GRADUATE STUDY

Applicants for admission to graduate study shall have been graduated from a recognized four-year college or university and should have completed a basic background of undergraduate work in the proposed field of graduate study. Applicants without such a background should expect to make up deficiencies.

The applicant must file completed graduate application forms and two official transcripts of all work taken on the collegiate level with the Registrar of the College at least three months prior to the quarter in which graduate study is to commence. Failure to do so may result in delay in admission and registration. All forms and transcripts submitted for admission become the property of the College and are not returned. Admission forms are available from the Registrar's Office.

Eligibility for admission as a graduate student is determined by the Graduate Council of the College upon the recommendation of the Biology or Education and Psychology departments.

Admission Requirements for the Master's Degree Program

1. A satisfactory score on the *Graduate Record Examination: Aptitude Test* or other tests approved by the Graduate Council. Applicants in Biology must also have taken the *Graduate Record Examination: Advanced Test in Biology.*
2. A minimum cumulative grade-point average of 2.75 is required either on the last 96 credits toward the Baccalaureate degree or on the total undergraduate program.

   An applicant who does not meet the above requirement but whose grade-point average is between 2.50 and 2.74 may apply as a postgraduate student. Upon completion of at least 12 approved credits with a 3.00 grade-point average, a student may reapply to enter the master's degree program. These credits do not apply toward the minimum 45 quarter credits required for the master's degree.
3. A student who meets the required grade-point average for entrance to the master's degree program but who registers as a postgraduate has no assurance that these credits will apply toward a master's degree.

Admission Requirements for the Non-Degree Program

Graduates of an accredited college or university may be admitted as postgraduate students to take courses toward certification, the fifth year, special credentials, or additional course work. These credits may not apply to a master's degree.

Graduate Credit for Seniors

Seniors whose programs for graduation have been approved and who otherwise meet the admission requirements of the graduate division may be permitted to take graduate courses if their programs will allow it.

GENERAL DEGREE REQUIREMENTS

Responsibilities of the Student

The graduate student is responsible for a knowledge of all regulations and procedures as published in this bulletin. The student must assume the initiative in such matters as arranging for required tests and examinations, securing approval of his program of study, and following all procedures in their proper sequence. Failure to do so may result in unnecessary delay or interruption of graduate study.

Residence and Time Requirements

A minimum of 45 quarter credits is required, at least 33 of which must be earned while in residence.

Credits older than six calendar years may not be used to satisfy degree requirements.

Course Requirements and Scholarship

The completion of a minimum of 45 quarter credits in approved graduate courses with a cumulative grade-point average of at least 3.00 is required. Grades of all courses on the graduate program including deficiencies will be computed in the grade-point average.

Courses numbered 500 or above are primarily for graduate students. A minimum of 24 credits must be earned in courses numbered 500 or above for the Master of Arts degree. A minimum of 30 credits is required in courses numbered 400 or above for the Master of Education degree. Courses numbered 400 to 499 are open to both undergraduate and graduate students. Courses numbered 350 to 399 may be included in the graduate program on approval of the Graduate Council.

Departmental Requirements

Candidates for a master's degree must also satisfy additional departmental requirements as listed in this bulletin under the section Departments of Instruction.

PROGRAM OF STUDY

The chairman of the department will provide assistance for the student in selecting the courses for the first quarter in residence and in planning the program of study for the degree. Immediately after completion of 12 quarter credits of graduate work and in conference with the department adviser, a proposed program of graduate study shall be submitted to the Graduate Council. Approval of the program and advancement to master's degree candidacy will be officially acknowledged by a letter from the chairman of the Graduate Council.

Course Load

The normal load is 12 credits per quarter. Any course load above this amount must be approved by the Graduate Council.

Changes in Registration

Changes in registration require the approval of the departmental graduate adviser. A student withdrawing from college or an individual course must file an official drop voucher with the Registrar's Office. During the first four weeks of any quarter the student may withdraw from a course and receive a W. Withdrawals after this time will result in the recording of a WF unless exception is granted by the Vice President, Academic Affairs. Courses for which WF is received are included in calculating the grade-point average.

Transfer of Graduate Credit

A maximum of 12 quarter credits of graduate work taken at other recognized institutions may be approved for transfer toward the master's degree. These credits may be by extension if acceptable toward the master's degree at the school offering the extension work. Correspondence credit or credit by examination is not accepted.

Bulletin

The student's degree candidacy must be based on the graduate bulletin in effect at the time the proposed program for graduate study is approved by the Graduate Council.

ADVANCEMENT TO DEGREE CANDIDACY

Admission to graduate study merely constitutes permission to register for course work. It does not imply degree candidacy.

A student may be advanced to master's degree candidacy by fulfilling the following conditions:

1. Complete a minimum of 12 credits of graduate work in approved courses with a minimum grade-point average of 3.00, demonstrating ability to do work of a graduate character.
2. Arrange for the removal of any undergraduate deficiencies.
3. Submit the "Application for Degree Candidacy and Proposed Program of Courses" form to the department chairman outlining a master's degree study program approved by the department concerned.
4. Secure approval of the proposed program by the Graduate Council.

Advancement to master's degree candidacy indicates that the Graduate Council and the departments concerned encourage the candidate to complete the master's degree. The degree is granted only after successful completion of the approved program of studies within the regulations of the College.

Changes in the proposed program may not be made without the prior approval of the department chairman, registrar, and chairman of the Graduate Council.

THESIS REQUIREMENT

A thesis demonstrating ability to conduct research in a systematic and scholarly manner must be presented by a candidate for the Master of Arts degree. The thesis is planned with and approved by the student's advisory committee. Completion of the thesis must be in accordance with the requirements of each department.

Approved copies of the completed thesis are kept on permanent file in the college library and in the respective departments.

FINAL EXAMINATIONS

Master's degree candidates must pass a written and/or oral examination administered by an examining committee. The nature of further examination, if required, is to be determined by the examination committee. A representative of the Graduate Council, who is not a member of the candidate's advisory committee, attends each oral examination.

Examination Regulations

1. Examinations should be completed at least two weeks before commencement.
2. It is the candidate's responsibility to schedule his examination with the department chairman.
3. The examination is conducted by the chairman of the candidate's advisory committee. Success or failure in the examination is determined by the examining committee.
4. Questions in the examination will be based upon the candidate's thesis and/or areas of study.
5. The time allowed for the examination is ordinarily not more than two hours.
6. Any candidate who fails the examination may be granted only one opportunity by the examination committee to retake his final examination after a lapse of at least one quarter.

CONFERMENT OF DEGREE

The candidate must file in duplicate the order form for the master's degree with the Registrar's Office prior to the beginning of the final quarter.

Students are required to participate in the graduation exercises. In special cases permission to receive the master's degree *in absentia* may be granted by the President of the College.

DEPARTMENTS OF INSTRUCTION

BIOLOGICAL SCIENCES

The Department of Biology offers a Master of Arts degree in biology. Courses are offered in zoology and botany on the main campus and at the Marine Biological Station near Anacortes, Washington. Supporting areas may be required to complete the educational background. One summer's attendance at the Marine Biological Station is expected.

The specific objectives of the Department of Biology applicable to the graduate program are:

1. To increase the competence of secondary school teachers, especially those in the Seventh-day Adventist educational system.
2. To prepare students for positions in institutions of higher education by giving them a firm foundation for work toward the doctorate.
3. To provide a preparation for research careers.

COURSES

401. **PLANT PHYSIOLOGY.** A course designed to cover the principles of physiology of plants in general. One laboratory per week. Prerequisite: 360. Four credits.

403. **ORNITHOLOGY.** A systematic study of native birds of North America, with emphasis on identification, migration, geographical distribution, habits and life histories. Two laboratories per week. Four credits.

405. **GENERAL ENTOMOLOGY.** A study of insect morphology, physiology and ecology. One laboratory per week. Four credits.

412. **PLANT ANATOMY.** A study of the microscopic anatomy of plant tissues with emphasis on their origin and development. Primary attention will be devoted to the vascular plants. Prerequisite: 360. One laboratory per week. Four credits.

420. **COMPARATIVE ANATOMY.** A study of the comparative anatomy of chordates with emphasis on the vertebrates. Detailed dissections of the shark and cat are made in the laboratory. Two laboratories per week. Five credits.

424. **HERPETOLOGY.** A systematic study of amphibians and reptiles with emphasis on natural history and ecology. Two laboratories per week. Four credits.

426. **SYSTEMATIC BOTANY.** Principles of classification of plants with emphasis on natural history and ecology. Two laboratories per week. Four credits.

427. **COASTAL FLORA.** A study of the principles of classification and of the ecological relationships of the vascular plants of the Puget Sound area. Special emphasis is given to the salt marshes, fresh-water pond, estuarine, grassland, and forest habitats of the islands and mainland. Four credits. (WWC Marine Biological Station.)

428. **PHYSIOLOGY OF THE ALGAE.** A comparative study of the physiology of representative members of the major algae groups. Collection and growth of pure cultures of single-celled forms and related metabolic processes, nutritional factors, light requirements, synchronization and growth will be emphasized. Four credits. (WWC Marine Biological Station).

429. **LIMNOLOGY.** A study of the factors responsible for the presence and distribution of animals and plants in fresh waters. Field work includes trips to a number of lakes and streams for collection of living specimens as well as habitat analysis. Four credits. (WWC Marine Biological Station).

441. **MICROTECHNIQUE.** A course designed to cover the important methods of making microscope slides. Two laboratories per week. Three credits.

444. **MAMMALOGY.** A systematic study of mammals with emphasis on natural history and ecology. Two laboratories per week. Four credits.

446. **GENERAL ECOLOGY.** A course designed to cover the basic principles of plant and animal ecology. Field trips to nearby areas illustrating these principles are part of the laboratory work. Two laboratories per week. Four credits.

447. **PARASITOLOGY.** A systematic study of the morphology, life cycle, and host-parasite relationships of protozoan, helminth, and arthropod parasites. Two laboratories per week. Five credits.

449. **VERTEBRATE HISTOLOGY.** The microscopic anatomy of vertebrate cells, tissues and organs including reference to their functions. Two laboratories per week. Four credits.

451, 452. **INVERTEBRATE ZOOLOGY.** A study of the biology of the invertebrates. The first half of the course includes the organisms through the pseudocoelomates; the second half comprises the eucoelomates. Four credits. (WWC Marine Biological Station).

453. **RESEARCH METHODS III.** Methods of writing the scientific paper, oral presentation of the paper and a discussion of the organization of the biological sciences for the communication of results of scientific research are included. Two credits.

462. **ICHTHYOLOGY.** A systematic study of the fishes found in Puget Sound, with a survey of the fishes of other waters. Four credits. (WWC Marine Biological Station).

463. **MARINE BOTANY.** A systematic study of plants found in Puget Sound, with a survey of marine plants from other areas. Four credits. (WWC Marine Biological Station).

464. **ANIMAL BEHAVIOR.** A comparative study of the behavior of animals with emphasis on an experimental analysis of behavior. A research project will be required. Four credits. (WWC Marine Biological Station).

465. **BACTERIOLOGY.** A presentation of the basic principles necessary for an understanding of morphology and function of bacteria. Laboratory work, including unknowns, points out techniques employed in their study. Two laboratories per week. Five credits.

467. **BIOLOGICAL OCEANOGRAPHY.** A study of physical, chemical and geological effects of the ocean on marine organisms. Four credits. (WWC Marine Biological Station.)

468. **COMPARATIVE PHYSIOLOGY.** A comparative study of the physiology and life processes of animals with emphasis on invertebrates. Prerequisite: 392, 393. Four credits. (WWC Marine Biological Station.)

470. **BIOPHYSICS.** An introductory course emphasizing the physical aspects of living organisms studied by the experimental and conceptual methods of physics with application to marine life. Four credits. (WWC Marine Biological Station).

474. **MARINE INVERTEBRATES.** A study of the biology of selected groups of marine invertebrates. Four credits. (WWC Marine Biological Station).

477, 478, 479. **INDEPENDENT STUDY IN BIOLOGICAL SCIENCE.** Directed study in an approved area. The student will be required to read widely on an assigned subject, follow regular research methods, and present a paper showing competence in and extent of his study. Open only to majors and minors. Permission from the chairman of the department required. One to three credits any quarter. Maximum, three credits.

483. **PHILOSOPHY OF ORIGINS AND SPECIATION.** The various theories on the origin and history of living organisms will be compared in light of present scientific knowledge in the areas of biochemistry, paleontology, morphology, geology, genetics, and other related areas. For majors and minors only. Three credits.

501. **RESEARCH IN BIOLOGY.** Individual work in a topic of original research carried out under the direction of one of the instructors. Two to four credits per quarter. Maximum, eight credits.

503. **GENETICS AND EVOLUTION.** Detailed study of the variability of the genetic mechanism as the latter relates to speciation. Processes of significance in species formation at the organism and population levels will be considered. Prerequisite: 261. Three credits.

506. **MORPHOLOGY OF PLANTS.** An advanced study of the type forms of the divisions of the plant kingdom. One laboratory per week. Prerequisite: 360 or permission of the instructor. Four credits.

510. **GRADUATE SEMINAR.** Presentation of topics and discussion of current research in specific areas of biology. One credit; any quarter. Maximum: five credits.

511. **PRINCIPLES OF TAXONOMY.** A course designed to give the student a working knowledge of the rules of nomenclature, the factors considered in classification, the preparation of synonymies and keys, and new methods for determining relationships. Four credits.

514. **SYMBIOSIS.** A study of sharply defined associations between organisms. Selected examples of the viruses, bacteria, plants and animals are used to illustrate varying degrees of relationships. Prerequisite: Course work in one group of animals or plants or microbes or parasitology. Chemistry courses through organic are highly recommended. Two laboratories per week. Four credits.

518. **SYSTEMATIC ENTOMOLOGY.** A study of the principles of classification of insects. Laboratory work emphasizes recognition of orders and families with special problems on the specific level. Prerequisite: course 405 highly recommended. Two laboratories per week. Four credits.

519. **FOREST ENTOMOLOGY.** A study of economically important forest insects with methods of control. Practical field experience is stressed. One laboratory per week. Prerequisite: 405. Four credits.

522. **CELLULAR BIOLOGY.** Current knowledge and research in the areas of cell physiology, biochemical genetics, bacteriological genetics, and radiation biology will be considered. Two laboratories per week. Prerequisite: 392, 393. Five credits.

537. **HELMINTHOLOGY.** A detailed study of the more common helminth parasites of animals is undertaken. Emphasis is given to current areas of research in helminthology. Basic techniques of importance in laboratory work with helminths are covered. Two laboratories per week. Prerequisite: 447. Four credits.

541. **BIOSTATISTICS.** Practice and theory in the use of statistical methods in quantitative biology. Four credits.

545. **THESIS.** Preparation of the master's dissertation after successfully carrying out original study with a suitable topic to be selected after consultation with the major professor. Eight credits.

DEPARTMENT OF EDUCATION AND PSYCHOLOGY

The Department of Education and Psychology offers two Master Degree programs—the Master of Arts, a thesis program, and the Master of Education, a non-thesis program. The programs permit professional enrichment through liberal course election in the areas of Administration, Elementary Language Arts, Elementary Teaching, Guidance, Junior High Specialization, Secondary Content Areas, and Teacher-Librarianship.

In addition to the general objectives of the Graduate Program, the following are specific objectives of the Department of Education:

1. To assist the student in developing a philosophy of education consistent with Christian ethics.
2. To develop an understanding of the relationship between teaching and the learning process.

MASTER OF ARTS

Basic Requirements Graduate Seminar Methods of Research Thesis Foundations	18
Area of Specialization (Administration or Guidance)	18
Electives with advisement Up to six credits numbered 400 or above may be selected from a department other than Education.	9
	45 credits

24 credits must be on the 500 level.

All candidates must qualify for a state-approved teaching certificate before the degree is granted. It is the responsibility of the candidate to present evidence of the qualification.

MASTER OF EDUCATION

Basic Requirements Graduate Seminar Methods of Research Foundations	10
Area of Specialization (Choose one of the following: Administration, Biology, Biophysics, Chemistry, Elementary Language Arts, Elementary Teaching, Guidance, Health and Physical Education, Junior High School Specialization, Mathematics, Physics, Secondary School Language Arts, Social Science, or Teacher-Librarian.)	24
Electives with advisement Content course selection must be from not more than two related areas.	11
	45 credits minimum

Two-thirds of the minimum 45 credits to be 400 level or higher with no credit below the 350 level.

One year of validated satisfactory professional experience.

All candidates must qualify for a state-approved teaching certificate before the degree is granted. It is the responsibility of the candidate to present evidence of this qualification.

All course work for the above degrees must be planned with and approved by the departmental adviser.

TEACHING CERTIFICATION

Walla Walla College is a state-approved teacher education institution. As such, it is authorized to recommend graduates to the Washington State Department of Education for the provisional and standard certificates.

The course offerings also provide for teaching certificates currently available from the General Conference Department of Education. Information concerning specific certificates is available in the regular bulletin and/or from the certification consultant.

Standard Certificates — Fifth Year

The fifth year must be planned by authorized personnel in the Education Department. By careful programming, some students are able to complete the requirements for the Master's degree in Education at the same time they are fulfilling the requirements for the Standard Certificate.

To be recommended for the Washington Standard Certificate, the candidate must fulfill the following requirements:

1. Hold a valid Washington provisional certificate.
2. Complete two years of successful teaching.
3. Complete 45 quarter credits beyond the Bachelor's degree.
4. Take History of the Pacific Northwest (for *all* elementary teachers and for those secondary teachers who plan to teach the social sciences).

Of the 45 credits, 22½ credits must be taken in residence; 30 credits may be earned prior to the first year of teaching; at least 15 hours must be earned after the first year of teaching; a maximum of 12 credits may be earned by correspondence and/or extension study. Correspondence or extension credits must be from schools approved by the college recommending the candidate for certification.

PRINCIPAL'S CREDENTIAL

Walla Walla College provides course offerings leading to both the provisional and standard principal's credentials (elementary, secondary, and general).

COURSES IN SUPPORTING DEPARTMENTS

Selected courses are available, with advisement, from the following departments: Business and Economics, Chemistry, English, Health and Physical Education, History, Political and Social Science, Mathematics, Modern Languages, Music, Physics, Religion, and Speech.

COURSES IN EDUCATION

361. **LANGUAGE ARTS IN THE ELEMENTARY SCHOOL.** Materials, objectives and methods used in the teaching of the language arts in the elementary school—composition, spelling, reading, listening, speaking. Three credits.

362. **READING IN THE ELEMENTARY SCHOOL.** Objectives and methods in the teaching of reading in the elementary school. Three credits.

365. **SOCIAL STUDIES IN THE ELEMENTARY SCHOOL.** Materials, objectives and methods used in teaching social studies in the elementary school, chosen from the fields of geography, history, civics and economics. Three credits.

369. **SCIENCE IN THE ELEMENTARY SCHOOL.** Objectives and materials used in the teaching of science at the primary and intermediate levels with particular emphasis on the application of the scientific method. Three credits.

373. **MATHEMATICS IN THE ELEMENTARY SCHOOL.** Methods of teaching modern mathematics in the elementary school. Proficiency test required for admission. Three credits.

390. **EDUCATIONAL EVALUATION.** A study of the statistics and methods of using evaluative instruments in the elementary and secondary school. Three credits.

404. **HISTORY OF EDUCATION.** A survey of the history of education. Three credits.

426. **EDUCATIONAL GUIDANCE.** An introduction to the basic functions of guidance and study of organizational patterns. Three credits.

431H&PE. **ELEMENTARY SCHOOL HEALTH INSTRUCTION.** Concepts of unit planning, methods, techniques, sources and evaluation of materials for use in elementary schools are studied. Students are required to read widely and collect material pertinent to the course. Three credits.

461. **METHODS OF AUDIO-VISUAL EDUCATION.** A survey of the methods of instruction through the use of audio-visual aids. The course provides training in equipment utilization, integration of techniques into instructional practices and selection and evaluation of audio-visual media. Two credits.

462. **INSTRUCTIONAL AIDS—PRODUCTION.** Designed for teachers, audio-visual directors and others interested in laboratory experience in the production of instructional aids; emphasis is on course-of-study implementation through production techniques feasible at the local school level. By permission of instructor. Two credits.

477, 478, 479. **INDEPENDENT STUDY IN EDUCATION.** Directed study in an approved area. The student will be required to read widely on an assigned subject, follow regular research methods, and present a paper showing competence in and extent of his study. Open to students preparing for teaching certification. Permission from the chairman of the department is required. One to three credits any quarter. Maximum, three credits.

485. **GROUP TESTING.** The selection, administration and interpre-

tation of standardized group tests for classroom and guidance use in elementary and secondary school. Prerequisite: 390. Two credits.

489. **VOCATIONAL GUIDANCE.** A study of current materials and trends in educational and vocational guidance. Three credits.

490. **TEACHING HIGH SCHOOL READING.** Basic principles of reading instruction; methods, materials and organization of the developmental and corrective reading programs in high school. Three credits.

495. **EARLY CHILDHOOD EDUCATION.** A critical review of the experimental literature of the cultivation of intellectual abilities in the young child with implications for the curriculum in nursery school and kindergarten. Prerequisites: 220 and 435. Three credits.

497. **WORKSHOP IN AEROSPACE EDUCATION.** A study of the basic phases of the aerospace age, e.g., economic, social, geographical, military and technical. Special areas will be meteorology, navigation, international problems in space, astronaut training and public safety. Three credits.

498. **WORKSHOP IN SCIENCE INSTRUCTION.** A workshop designed to assist elementary and junior high school personnel to be cognizant of contemporary objectives in science instruction and to explore appropriate methods of motivation and teaching. A review of textual materials and teaching aids will be included. Three credits.

499. **WORKSHOP IN ELEMENTARY SCHOOL GUIDANCE.** A study of the rationale for elementary school guidance with emphasis upon current research and issues. Attention will be focused upon the tools and techniques of both classroom and out-of-class guidance functions and services. Three credits.

Graduate Courses

500. **GRADUATE SEMINAR.** A weekly discussion period in which faculty and students explore significant issues in education. One credit.

504. **ELEMENTARY SCHOOL CURRICULUM.** A study of the elementary school curriculum, including objectives, essentials of a good program, varying curriculum patterns and appraisal of current practices. Three credits.

508. **SECONDARY SCHOOL CURRICULUM.** Overview of the secondary school curriculum, with emphasis on the various subject fields; organization of the school for curriculum development; educational objectives; the courses of study; evaluation of the secondary school curriculum. Three credits.

511. **LITERATURE IN THE SECONDARY SCHOOL.** A survey of literature suitable to grades 7-12 with attention to evaluation, selection, authors, illustrators and publishers. Three credits.

515. **COUNSELING AND GUIDANCE.** Principles and techniques of individual and group counseling. Prerequisite: 426 or equivalent. Three credits.

522. **PHILOSOPHY OF EDUCATION.** A study of the basic philosophies and development of educational thinking resulting in the formulation of aims and objectives of education for today's schools. Three credits.

525. **EDUCATION IN THE TWENTIETH CENTURY.** Historical background of modern education with emphasis on trends and developments in the twentieth century. Three credits.

526. **SCHOOL FINANCE.** A course designed for administrators, emphasizing origin and disbursement of school funds derived from tax sources and other revenues. Techniques of budget construction are studied and a general overview is given of the principles of financing education. Three credits.

527. **SCHOOL PLANNING AND CONSTRUCTION.** A survey of how to plan and build schools, including the involvement of the lay citizen. Selection of site, trends in design, function of buildings and plant costs and obligations will be studied. Professional architects and engineers will be guest lecturers. Three credits.

535. **TEACHING OF REMEDIAL READING.** Diagnostic and remedial reading techniques, how to recognize reading difficulties and improve reading skills. Laboratory experience required. Three credits.

539. **SUPERVISION.** For principals, classroom teachers or those planning to be supervisors. Problems, responsibilities, privileges and duties of both teacher and supervisor, and the improvement of teachers in service through a comprehensive program of supervision. Three credits.

544. **ADMINISTRATION OF THE ELEMENTARY SCHOOL.** Organization, supervision and administration of elementary schools. Three credits.

549. **MENTAL HEALTH IN EDUCATION.** Physiological and psychological factors related to emotional maturity. Identification of mental health activities. Individual mental health, classroom climate, patterns of acceptance and rejection. Three credits.

551. **ADMINISTRATION OF THE SECONDARY SCHOOL.** Problems and procedures in the organization and administration of secondary schools. Three credits.

556. **CURRICULUM PLANNING.** The relation of curriculum materials to educational outcomes in terms of personal and social values. A brief review of curriculum investigations and their significance in the selection and evaluation of school materials and activities. Current practices in curriculum revision. Three credits.

560. **ADMINISTRATIVE PRACTICUM.** Professional laboratory experience for candidates for an administrative credential. The course is designed to involve each candidate in a variety of practical administrative experiences and to assist in his successful induction into school leadership. Five credits.

561. **METHODS OF RESEARCH.** Procedures in the selection and evaluation of research projects and techniques in the analysis of research data. Three credits.

567. **COMPARATIVE EDUCATION.** A comparison of systems and philosophies of education in various parts of the world; emphasis on the role of cultural impacts. Three credits.

570. **TOPICS.** Selected topics in education involving research and reports in addition to regular class activities. Three credits. Maximum, six.

581, 582, 583. **PROFESSIONAL PROJECT.** Selected areas of advanced study involving reading and research. Formal report required. Prerequisite: consent of department head and graduate standing. Two, four or six credits. Maximum, six.

590. **THESIS.** Eight credits.

COURSES IN PSYCHOLOGY

350. **ELEMENTARY STATISTICS.** Descriptive techniques and other selected fundamental procedures for summarizing and interpreting data from tests and research in education and psychology. Three credits.

431. **PSYCHOLOGY OF EXCEPTIONAL CHILDREN.** Characteristics and problems of all types of exceptional children with consideration of essential educational adaptation. Prerequisite: 121, 122. Three credits.

435. **CHILD PSYCHOLOGY.** Principles of growth as related to various phases of human development during the pre-adolescent years: physical, mental and emotional. Prerequisite: 121, 122. Three credits.

436. **ADOLESCENT PSYCHOLOGY.** Principles of growth as related to various phases of human development during the adolescent years: physical, mental and emotional. Prerequisite: 121, 122. Three credits.

444. **SOCIAL PSYCHOLOGY.** A study of personality patterns that function in the interpersonal and inter-group life into which all human beings are born and within which they develop and mature. The course is concerned with human behavior, attitudes and processes of the phenomena of communication, suggestion, conflict, accommodation, assimilation and socialization. Three credits.

Graduate Courses

501. **STATISTICS IN RESEARCH.** An introduction to probability and statistical inference including t-ration, simple analysis of variance, chi square and other selected non-parametric statistics used in educational or psychological research. Prerequisite: 390 or a course in elementary statistics. Three credits.

521. **PSYCHOLOGY OF LEARNING.** The course includes analysis of the mechanisms involved in the learning process. The physiological and psychological bases for functional learning are discussed, and the experimental evidence supporting psychological hypotheses is reviewed. Three credits.

531. **INDIVIDUAL TESTING.** A course designed to familiarize the student with the Stanford-Binet and Wechsler Intelligence Scales, their administration and interpretation. Arrangements to enroll in the course must be made through the department chairman. Prerequisite: 390. Four credits.

564. **ABNORMAL PSYCHOLOGY.** A study of behavioral deviations, therapeutic measures and theories. Three credits.

565. **PRACTICUM IN SCHOOL COUNSELING.** Practical experience in various guidance techniques under supervision of qualified school counselors. Prerequisite: departmental approval. Five credits.

WALLA WALLA COLLEGE

GRADUATE BULLETIN

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