

### **Business Administration**

The Business Administration program offers study in finance, management, marketing, entrepreneurship/small business management, international business, management information systems, computer forensics, computer information systems, fraud examination, and general business. The focus is undergraduate education in this student-oriented learning environment. Hands-on learning, full student participation, and technology are integrated throughout the Business Administration program. Neither narrow nor vocational in its approach, the course work includes critical and logical thinking, communication skills, creative problem solving, innovation, decision making, and theoretical, technical, and professional skills.

Business policies and practices both reflect and help form the ethical, global/international, and moral foundations of a society; business both draws upon and contributes to knowledge and understanding of the world. In recognition of this, the Department of Business Administration educates its students to be discerning, responsible citizens of both the business community and our democratic society.

The theoretical aspects of business are grounded in social sciences such as economics, political science, psychology, sociology, and anthropology. The Business Administration curriculum is therefore broadly conceived. It prepares students for entry into the business world or for graduate study, and offers them a core education that will contribute to their intellectual, personal, and ethical growth.

### **Programs**

- Business Administration, B.S. (Business Analytics Information Systems Emphasis) major
- Business Administration, B.S. (Entrepreneurship Emphasis) major
- Business Administration, B.S. (Professional Selling Emphasis) major
- Business Administration, B.S. (Marketing Emphasis) major
- Business Administration, B.S. (Management Emphasis) major
- Business Administration, B.S. (Indigenous Business) major
- Business Administration, B.S. (Human Resources Management Emphasis) major
- Business Administration, B.S. (Finance Emphasis) major
- Computer Information Systems, B.S. major
- Marketing Communication, B.S. major
- Business Administration minor
- Management Information Systems minor
- Professional Selling minor

#### Career Directions

Account Representative

Administrative Services Manager

Administrator

Advertising

Advertising Executive

Advertising Manager

Agent Manager

Applications Development

Applications Support

Appraiser & Assessor

Bank Examiner

Bank Officer

**Budget Analyst** 

**Business Analyst** 

**Business Director** 

**Buying Agent** 

Claims Adjusters

College & University Administrator

Commodities Salespeople

Communications Directors

Compliance Officer & Inspector

Computer Forensics

Computer Operations Manager

Computer Programmer

Computer Securities Specialist

Computer Support Specialists

Computer Systems Analysts

Construction Managers

Corporate Trainer

Cost Estimator

Credit Analyst

Data Communications Analysts

Database Administrator

Demonstrators & Promoters

Doctoral Program - Graduate Study

E-Commerce Development

E-Commerce Support

E-Commerce Web Programmer

Education Administrators

Educator

**Engineering Managers** 

Entrepreneur

Executives

Finance Director

Financial Analyst

Financial Counselor

Financial Information Specialist

Financial Manager

Financial Planner

Food Service Manager

Gaming Services

Health Services Administrators

Hotel & Motel Managers

Human Resource Manager

Human Resources Training

Industrial Production Managers

Information Center Specialist

Information Director

Information Systems Analyst

Information Systems Manager Information Technology Auditors

Information Technology Consultant

Insurance Adjuster

Insurance Agents

Insurance Examiner

Insurance Investigators

Insurance Underwriters

Internet Website Developer

**IRS** Agents

Knowledge Engineer

Labor Relations Specialists

Loan Analyst

Loan Counselor

Loan Officers

Lodging Managers

Management Analyst

Management Consultant

Manager

Manufacturing

Marketing Executive

Marketing Manager

Master's Program - Graduate Study

Media Relations

Medical and Health Services Manager

Natural Sciences Manager

Network Specialist

Operations Manager

Personnel & Training Managers

Postmaster & Mail Superintendent

Product Support

Production / Operations Supervisor

Production Manager

Project Leader

Promotions Director

Promotions Management

Property & Real Estate Managers

Proprietors

Public Relations

**Public Speaking** 

Purchasing Agents

**Purchasing Managers** 

Real Estate Agents

Resort Managers

Restaurant Manager

Sales Engineers

Sales Executive

Sales Manager

Sales Representative

Sales Worker Supervisors

Securities Salespeople

Small Business Management

Software Engineer

Storage & Transportation Manager

Tax Examiners

Telecommunications Specialist

Web Site Developer

Wholesalers

Also: Graduate Study

### Preparation

Recommended High School Courses

Mathematics Computing Speech Writing

**Business Administration** 

### Business Administration, B.S. major **Business Analytics Information Systems Emphasis**

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

### Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### II EMPHASIS REQUIRED COURSES

### Complete the following courses:

- BUAD 3232 Predictive Analytics (3 credits) or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3281 Management Science (3 credits)
- BUAD 3382 Business Application Development (3 credits) or BUAD 3384 Systems Analysis and Design (3 credits)
- BUAD 4385 Data Modeling and Visualization (3 credits)
- BUAD 4386 Information Systems Analytics (3 credits)

### Select two of the following courses:

- BUAD 3283 E-Commerce Web Development (3 credits) or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 3450 Indigenous Business (3 credits)
- BUAD 3520 Business Ethics (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 3677 Real Estate (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 3872 Investments (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills

- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Business Administration, B.S. major Entrepreneurship Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

### Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

### Complete the following courses:

- BUAD 3283 E-Commerce Web Development (3 credits) or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 4458 Entrepreneurship (3 credits)
- BUAD 4469 Small Business Case Analysis (3 credits)

### REQUIRED ELECTIVES

### Select 2 of the following courses:

- ACCT 3117 Managerial Analysis (3 credits) or ACCT 3118 Financial Statement Analysis (3 credits)
- BUAD 3232 Predictive Analytics (3 credits) or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3281 Management Science (3 credits)
- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 3450 Indigenous Business (3 credits)
- BUAD 3520 Business Ethics (3 credits)
- BUAD 3677 Real Estate (3 credits)
- BUAD 3872 Investments (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

## Business Administration, B.S. *major* Professional Selling Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 63 Required GPA: 2.25

### I REQUIRED COURSES

### Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

### Complete the following courses:

- BUAD 3567 Consumer Behavior (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 4340 Sales Management (3 credits)
- BUAD 4568 Advanced Professional Selling (3 credits)
- COMM 4160 Business Communication (3 credits)

### REQUIRED ELECTIVES

Select 2 elective courses for the Professional Selling emphasis:

• BUAD 3467 Advertising Management (3 credits)

- BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3569 Digital Marketing (3 credits)
- BUAD 3751 International Marketing (3 credits)
- BUAD 4347 Sales Simulator Lab (2 credits)
- COMM 3100 Interviewing (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

# Business Administration, B.S. *major* Marketing Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

### Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

### Complete the following courses:

- BUAD 3232 Predictive Analytics (3 credits) or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits) or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3567 Consumer Behavior (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 4467 Marketing Research (3 credits)
- BUAD 4468 Marketing Management (3 credits)

### REQUIRED ELECTIVES

Select 1 of the following courses:

- BUAD 3281 Management Science (3 credits)
- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 3450 Indigenous Business (3 credits)
- BUAD 3520 Business Ethics (3 credits)
- BUAD 3677 Real Estate (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 3872 Investments (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Business Administration, B.S. major Management Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

Complete the following courses:

- ACCT 3118 Financial Statement Analysis (3 credits)
- BUAD 3281 Management Science (3 credits)

- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 3520 Business Ethics (3 credits)
- BUAD 4354 Organizational Behavior (3 credits)
- BUAD 4456 Human Resources Management (3 credits)

### REQUIRED ELECTIVES

Select 1 of the following courses:

- BUAD 3232 Predictive Analytics (3 credits) or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits) or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3450 Indigenous Business (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 3677 Real Estate (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 3872 Investments (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Business Administration, B.S. major **Indigenous Business**

This program offers study in Indigenous business with coursework in finance, management, marketing, entrepreneurship, human resource management, and general business. It furthers the inclusion of Indigenous perspectives and demonstrates the significant impact that Native Americans have had on business, as well as, cultural contributions to management, leadership, marketing, economic development, and entrepreneurship. Course work includes logical thinking, communications skills, theoretical, technical and professional skills, and creative problem solving/decision-making.

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)

- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

Complete the following courses:

- BUAD 3450 Indigenous Business (3 credits)
- BUAD 4550 Indigenous Entrepreneurship (3 credits)

### REQUIRED ELECTIVES

Complete 15 credits (one 3 credit course from each section); no course may be counted toward more than one of the fields:

Finance: Select one

- BUAD 3772 Advanced Financial Management (3 credits)
- BUAD 3872 Investments (3 credits)

Management: Select one

- BUAD 4354 Organizational Behavior (3 credits)
- BUAD 4456 Human Resources Management (3 credits)

Marketing: Select one

- BUAD 3567 Consumer Behavior (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 4467 Marketing Research (3 credits)

Entrepreneurship: Select one

- BUAD 4458 Entrepreneurship (3 credits)
- BUAD 4469 Small Business Case Analysis (3 credits)

Human Resources Management: Select one

- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 4456 Human Resources Management (3 credits)

## PROGRAM LEARNING OUTCOMES | BUSINESS ADMINISTRATION, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Business Administration, B.S. major Human Resources Management Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

Complete the following courses:

- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 4456 Human Resources Management (3 credits)
- BUAD 4500 Compensation and Benefits (3 credits)
- BUAD 4507 Talent Acquisition (3 credits)
- BUAD 4508 Training, Development, and Evaluation (3 credits)
- BUAD 4509 Diversity and Inclusion (3 credits)

### REQUIRED ELECTIVES

Select 1 of the following courses:

- BUAD 3232 Predictive Analytics (3 credits)
  or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3281 Management Science (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits)
  or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3450 Indigenous Business (3 credits)
- BUAD 3520 Business Ethics (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 3677 Real Estate (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 3872 Investments (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.

- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Business Administration, B.S. major Finance Emphasis

Students majoring in Business Administration are advised to complete at least one course in Psychology, Sociology, or Anthropology as part of their core curriculum requirements.

Required Credits: 64 Required GPA: 2.25

### I REQUIRED COURSES

Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 1170 College Algebra (3 credits)

### ADDITIONAL REQUIRED COURSES

Complete the following courses:

- BUAD 3677 Real Estate (3 credits) or ACCT 3404 Income Taxes I (3 credits)
- BUAD 3678 Risk Management and Insurance (3 credits)
- BUAD 3772 Advanced Financial Management (3 credits)
- BUAD 3872 Investments (3 credits)
- BUAD 4779 Corporate Financial Policies (3 credits)

#### RESTRICTED ELECTIVES

Select 2 of the following courses:

- ACCT 3117 Managerial Analysis (3 credits) or ACCT 3118 Financial Statement Analysis (3 credits)
- BUAD 3232 Predictive Analytics (3 credits) or BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3281 Management Science (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits) or BUAD 3569 Digital Marketing (3 credits)
- BUAD 3420 Labor and Employment Relations (3 credits)
- BUAD 3450 Indigenous Business (3 credits)

- BUAD 3520 Business Ethics (3 credits)
- BUAD 3568 Professional Selling (3 credits)

### Program Learning Outcomes | Business Administration, B.S.

- 1. Graduates will demonstrate a foundational knowledge in the field of business.
- 2. Graduates will utilize practical business tools.
- 3. Graduates will demonstrate professional communication skills
- 4. Graduates will collaborate effectively
- 5. Graduates will demonstrate ability to ethically address complex problems in a realistic business environment.

### Computer Information Systems, B.S. major

Required Credits: 76 Required GPA: 2.25

### I REQUIRED BASIC CORE COURSES

Complete the following courses:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2220 Legal Environment (3 credits)
- BUAD 2231 Business Statistics I (3 credits) or STAT 2610 Applied Statistics (4 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)
- BUAD 4559 Strategic Management (3 credits)
- BUAD 4600 Senior Seminar: Business Administration (1 credit)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)
- MATH 2210 Discrete Mathematics (4 credits)

### II ADDITIONAL REQUIRED COURSES

Complete the following courses:

- BUAD 3382 Business Application Development (3 credits)
- BUAD 3384 Systems Analysis and Design (3 credits)
- BUAD 4385 Data Modeling and Visualization (3 credits)
- CS 1309 Problem Solving and Computation (3 credits)
- CS 2321 Computer Science I (4 credits)
- CS 2322 Computer Science II (4 credits)
- CS 4390 Social, Ethical, and Professional Issues in Computing (3 credits)

### III REQUIRED ELECTIVES

Select three of the following: At least TWO courses must be from Group B

GROUP A.

- BUAD 3281 Management Science (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits)
- BUAD 3383 Data Communications (3 credits)
- BUAD 4386 Information Systems Analytics (3 credits)
- BUAD 4387 Strategic Information Management (3 credits) May include 3 credits of
- BUAD 4970 Internship (1-12 credits)

#### GROUP B.

- CS 2270 Introduction to Web Programming (3 credits)
- CS 3270 Advanced Web Programming (3 credits)
- CS 3350 Event-Driven Programming in a Windows Environment (3
- CS 3360 Object-Oriented Software Development (3 credits)
- CS 3370 Mobile Application Development (3 credits)
- CS 3380 Game Development (3 credits)
- CS 3507 Introduction to Databases (3 credits)
- CS 3528 Data Structures and Algorithms (4 credits)
- CS 3560 Data Communications and Networks (3 credits)
- CS 4360 Software Engineering (3 credits)
- CS 4970 Internship (3 credits)

### Program Learning Outcomes | Computer Information Systems, B.S.

1. Graduates will demonstrate a foundational knowledge in the field of business.

Students will be able to analyze information systems solutions professionally and ethically.

2. Graduates will demonstrate information literacy.

Student will be able to evaluate the management of data through computer technology.

3. Graduates will demonstrate professional communication skills.

Students will be able to apply information systems (IS) solutions within industry settings.

4. Graduates will demonstrate the ability to work effectively as part of a team.

Students will be able to apply algorithmically multiple problem solving techniques.

5. Graduates will demonstrate the ability to analyze complex business situations and ethical obligations in a realistic business environment.

Students will be able to develop software in at least one higher-level programming language using an object-oriented approach.

### Marketing Communication, B.S. major

Required Credits: 60 Required GPA: 2.25

### I REQUIRED COURSES

Compete the following courses:

- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)

- BUAD 3467 Advertising Management (3 credits)
- BUAD 3500 Marketing Analytics (3 credits)
- BUAD 3567 Consumer Behavior (3 credits)
- BUAD 3568 Professional Selling (3 credits)
- BUAD 3569 Digital Marketing (3 credits)
- BUAD 4467 Marketing Research (3 credits)
- BUAD 4468 Marketing Management (3 credits)
- MASC 2243 Video Editing (3 credits)
- MASC 2250 Video Production (3 credits)
- MASC 2850 Media Writing I (3 credits)
- MASC 3260 Public Relations (3 credits)
- MASC 3270 Media and Social Change (3 credits)
- MASC 3500 Media Design (3 credits)
- MASC 3600 Social Media Marketing (3 credits)
- MASC 4220 Multimedia Marketing (3 credits)
- MASC 4840 Portfolio (3 credits)

### Select 1 of the following courses, 3 credits:

- MASC 4970 Internship (1-12 credits)
- BUAD 4970 Internship (1-12 credits)

### Business Administration minor

Required Credits: 24 Required GPA: 2.00

### **REQUIRED COURSES**

### COMPLETE THE FOLLOWING COURSES:

- ACCT 2101 Principles of Accounting I (3 credits)
- ACCT 2102 Principles of Accounting II (3 credits)
- BUAD 2231 Business Statistics I (3 credits)
- BUAD 3223 Operations Management (3 credits)
- BUAD 3351 Management (3 credits)
- BUAD 3361 Marketing (3 credits)
- BUAD 3381 Management Information Systems (3 credits)
- BUAD 3771 Financial Management (3 credits)

### Management Information Systems minor

Required Credits: 27 Required GPA: 2.00

### **REQUIRED COURSES**

### COMPLETE THE FOLLOWING COURSES:

- BUAD 2231 Business Statistics I (3 credits)
- BUAD 2280 Computer Business Applications (3 credits)
- BUAD 3381 Management Information Systems (3 credits)

### SELECT 1 OF THE FOLLOWING COURSES:

- ACCT 2101 Principles of Accounting I (3 credits)
- ECON 2000 Principles of Microeconomics (3 credits)
- ECON 2100 Principles of Macroeconomics (3 credits)

### REQUIRED ELECTIVES

SELECT 5 OF THE FOLLOWING COURSES, 3 OF WHICH MUST NOT BE REPEATED IN THE MAJOR

- BUAD 3281 Management Science (3 credits)
- BUAD 3283 E-Commerce Web Development (3 credits)
- BUAD 3382 Business Application Development (3 credits)
- BUAD 3383 Data Communications (3 credits)
- BUAD 3384 Systems Analysis and Design (3 credits)
- BUAD 4385 Data Modeling and Visualization (3 credits)
- BUAD 4386 Information Systems Analytics (3 credits)
- BUAD 4387 Strategic Information Management (3 credits)

### MANAGEMENT INFORMATION SYSTEMS MINOR

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Management Information Systems Minor must select 3 courses which are not repeated in their major.

### Professional Selling minor

Required Credits: 15 Required GPA: 2.00

### **REQUIRED COURSES**

#### COMPLETE THE FOLLOWING COURSES:

- BUAD 3568 Professional Selling (3 credits)
- BUAD 4340 Sales Management (3 credits)
- BUAD 4458 Entrepreneurship (3 credits)
- BUAD 4568 Advanced Professional Selling (3 credits)
- COMM 4160 Business Communication (3 credits)

### **Business Administration Courses**

### BUAD 1100 Introduction to Business (3 credits)

Course provides an overview of the world of business. Included is an introduction to basic business terminology, concepts, and functions featuring an analysis of marketing, finance, production, personnel management, accounting, and economics as they relate to business meeting its social responsibility of resource allocation. Not open to Business Administration juniors or seniors.

### BUAD 2220 Legal Environment (3 credits)

An introduction to business and the law. Considers the general nature of law, the legal system, alternative dispute resolution, constitutional law, business ethics, torts, contracts, product liability, employment law, business organizations, consumer protection, and the rights and responsibilities of individuals and businesses in our society.

### BUAD 2231 Business Statistics I (3 credits)

Collection, presentation, analysis, and interpretation of business and economic data. Prerequisite: MATH 1170 (or equivalent or higher.)

### BUAD 2280 Computer Business Applications (3 credits)

Students develop applications employing decision support systems (DSS) technology to enable decision-making, planning, and auditing, utilizing client (MS-Office) software with emphasis on spreadsheets, graphic presentation software, and word processing, and database management systems. Students will test in attempt to attain Microsoft Office Specialist (MOS) Certification for Excel in the current version of study.

### BUAD 2925 People of the Environment: Business Perspective (3 credits)

A survey of environmental issues in relation to business and commerce. Considers the rights and obligations of individuals and businesses in participating in decision-making regarding environmental concerns. Encompasses views on what makes environmentally responsible business. This course does not satisfy any Business Administration major or minor degree requirements.

### BUAD 3223 Operations Management (3 credits)

Study of the operations function in both manufacturing and service organizations in terms of operations planning and control, inventory management, quality control, and job design. Prerequisites: ACCT 2102, BUAD 2231, and ECON 2100, or consent of instructor and junior standing.

### BUAD 3232 Predictive Analytics (3 credits)

The application of multivariate statistics to improve business decision making and how business leaders can best understand the results of these analyses. Students will determine patterns and predict future outcomes and trends using data analysis with an emphasis on regression and correlation, time series, analysis of variance, and business forecasting. Prerequisite: BUAD 2231 or consent of

### BUAD 3281 Management Science (3 credits)

This course covers the quantitative method and models in business that focus on management science techniques, using a linear programming tool implemented in Excel. Design, documentation, and auditing standards are defined and applied to models and spreadsheet database applications. Prerequisites: ACCT 2102, BUAD 2280 and MATH 1170 (or equivalent or higher).

### BUAD 3283 E-Commerce Web Development (3 credits)

WWW environment, browsers, Web 2.0, Ajax Client and programming techniques. Major topics include Web page design, Web-based multimedia/ graphics, XHTML, W3C XHTML validation service, CSS AND JavaScript. Create Headings, Links, Images, Special characters, Tables, Lists, Forms, Positioning Elements, Embedded Style Sheets, Text Flow, Box Model, User Style sheet and Drop-Down Menu. Prerequisites: BUAD 2280 and any computer programming course.

### BUAD 3351 Management (3 credits)

Management principles course emphasizing functional areas of management: Planning, organizing, leading and controlling. Prerequisite(s): Minimum of 45 competed credits; (Completion of ACCT 2102, ECON 2100 and BUAD 2231 preferred not required.)

### BUAD 3361 Marketing (3 credits)

Procedures and institutions involved in the distribution of goods and services, product development and pricing, marketing costs, consumer motivation and buying habits, and government regulation. Prerequisites: ACCT 2102, ECON 2100, and BUAD 2231; or consent of instructor and junior standing.

### BUAD 3381 Management Information Systems (3 credits)

A decision-making course in management information systems. Focus on the enhancement of competitive advantage by utilizing computer information systems to improve strategic decision-making, improve efficiency, and provide innovative products and services. Emphasis is on information technology's impact on competitive pressures, responses to competitive pressures, and optimal use of the types of information systems by management at the appropriate organizational level. Prerequisites: ACCT 2101, BUAD 2231, BUAD 2280, ECON 2000 or ECON 2100, or consent of instructor and junior standing.

### BUAD 3382 Business Application Development (3 credits)

Advanced business application computer programming with emphasis on the highly structured design techniques used by industry. Interactive concepts are integrated within table processing, file processing, and web E-Commerce processing using Micro Focus, Visual Basic, or other similar tool. Prerequisites: BUAD 2280 or consent of instructor.

### BUAD 3383 Data Communications (3 credits)

An overview of data communications network design issues and strategies critical to the design and implementation of effective distributed computing systems. Topics include data communications hardware and software, communications media, and OSI reference model. Prerequisite: BUAD 3381 or consent of instructor.

### BUAD 3384 Systems Analysis and Design (3 credits)

Information systems methodologies to solve enterprise-wide managerial and organizational problems. Students will use systems design methodologies to develop information system projects and evaluate cases. Approaches to information system implementation, installation, and maintenance activities are also addressed. Includes structured laboratory exercises using computer-based software engineering tools. Prerequisites: ACCT 2101, BUAD 2280, and BUAD 3381, or consent of instructor and junior standing.

### BUAD 3420 Labor and Employment Relations (3 credits)

Study of labor relations, collective bargaining, employment law practices, and current employee relations procedures. Prerequisites: BUAD 2220 and BUAD 3351.

### BUAD 3450 Indigenous Business (3 credits)

The purpose of this course is to introduce students to indigenous business as a field of study. Focus on Indigenous business, business practices, and business education. It will further the inclusion of Indigenous perspectives and demonstrate the significant impact that Native Americans have had on business, as well as, cultural contributions to management, leadership, marketing, economic development, and entrepreneurship. [Nisidotaading Course Requirement]

### BUAD 3467 Advertising Management (3 credits)

Importance of advertising in the marketing function: buying motives, motivation and advertising research, media selection, advertising budgets, advertising agencies, social and economic effects of advertising, problems and testing of advertising effectiveness, and advertising as part of the marketing plan. Prerequisite: BUAD 3361.

### BUAD 3500 Marketing Analytics (3 credits)

In this digital age, there is an unprecedented volume, velocity, and variety of marketing data available to firms. User characteristics and behaviors are tracked in detail for websites, social media pages, and ad campaigns, and information-rich user-generated content is contributed at breakneck speed throughout the web. The marketing world is a-buzz with excitement about using this "big data" to increase profits - yet, many marketers find real, measurable value-gain to be elusive. It is all too easy to suffer "analysis paralysis" in the face of a sea of metrics; to make misinformed recommendations based on flawed data or analytics; or in invest in an analytics tool that makes strong promises but doesn't deliver actionable insights. Prerequisite(s): BUAD 3361

#### BUAD 3520 Business Ethics (3 credits)

A survey of business ethics. Examines conflicts and problems which are facing business persons and the increase of consciousness in business ethics. Concentrates on organizational, market, and governmental regulations of business ethics and their effects on business and its stakeholders.

### BUAD 3567 Consumer Behavior (3 credits)

An interdisciplinary approach to the study of the buying behaviors of consumers. Emphasizes the marketing implications of theory and findings from the behavioral sciences. Prerequisite: BUAD 3361.

### BUAD 3568 Professional Selling (3 credits)

A study of the principles and psychology of personal selling. Course requires the preparation and presentation of a sales story. Prerequisite(s): BUAD 3361, or enrolled in Professional Selling minor, or Instructor Consent

### BUAD 3569 Digital Marketing (3 credits)

This course provides a broad overview of the digital marketing techniques needed for successful marketing campaigns in a digital economy. Students will learn digital marketing core principles and strategic aspects of the customer experience, analytics, digital content monetization, and online customer acquisition. In this this course, students will explore digital marketing tools and tactics for web page design, search engine optimization, online advertising, email marketing, social media marketing, display advertising, paid search marketing, and online reputation management. Prerequisites: BUAD 2280 and BUAD 3361; or consent of instructor.

#### BUAD 3677 Real Estate (3 credits)

An introduction to real estate principles and practices, including ethics, titles to and conveyance of real estate, legal descriptions and deeds, government controls, market valuation and appraisal, real estate finance, brokerage, closing the transaction, real estate investment and taxation.

### BUAD 3678 Risk Management and Insurance (3 credits)

Principles for decision making involving risk taking and risk avoidance. An examination of the theory of economic risk with emphasis on insurance as a major tool for dealing with risk.

### BUAD 3751 International Marketing (3 credits)

This course provides a global orientation for marketing in today's complex, rapidly changing international business environment. It focuses on developing an effective global marketing strategy through market segmentation, market targeting, and market positioning in the international business world. Prerequisites: ACCT 2102 and ECON 2100.

### BUAD 3771 Financial Management (3 credits)

An investigation of the financial management of corporate organizations. Basic principles of analysis, planning, and control are considered for determining the best combinations of obtaining and investing capital. Prerequisites: ACCT 2102, BUAD 2231, and ECON 2100, or consent of instructor and junior standing.

### BUAD 3772 Advanced Financial Management (3 credits)

An in-depth analysis of financial management in corporations with emphasis on decision making. Working capital management, short-term and long-term financing, mergers, business failures, and reorganizations are considered in depth with an extension of the valuation concepts presented in the basic financial management course. Prerequisite: BUAD 3771.

### BUAD 3872 Investments (3 credits)

Analysis of alternatives in the investment environment required to evaluate the potential risk and return associated with an investment decision. Prerequisite: BUAD 3771.

### BUAD 4340 Sales Management (3 credits)

This course is an overview of sales management including forecasting sales, territory development and management, training & motivation, supervision of salesforce, compensation, CRM management, and sales management problems with resolution. Prerequisite(s): BUAD 3568.

### BUAD 4347 Sales Simulator Lab (2 credits)

The purpose of this course is to combine sales education with practical sales experience through experiential learning and role play. Students will participate in sales competition. Course is repeatable for up to 4 credits. Prerequisite(s): Instructor consent.

### BUAD 4354 Organizational Behavior (3 credits)

Focuses on the problems encountered by employees in work relationships with fellow employees, supervisors, and subordinates. Empirical research providing models and tools for diagnosing and managing work situations, individual and group behavior, intergroup conflicts, supervisory problems and organizational change will be studied. Prerequisite: BUAD 3351.

### BUAD 4385 Data Modeling and Visualization (3 credits)

To prepare students to gather, store, describe, analyze, visualize, and communicate data in a meaningful manner to convert data into actionable insight and support organizations in decision-making. This course focuses on conceptual, logical, and physical data modeling including the study of Structured Query Language (SQL). Skills to be developed include visualization tools and techniques to transform data into interactively visualized data, such as dashboards, charts, graphs, and maps. Prerequisite(s): BUAD 3384; or consent of instructor.

### BUAD 4386 Information Systems Analytics (3 credits)

The study of collecting, sorting, filtering, analyzing, and storing organizational data to improve business functions. Students will build experience in the use of various techniques in visualizations and programming. Prerequisite(s): BUAD 3382 and BUAD 3384; or consent of instructor.

### BUAD 4387 Strategic Information Management (3 credits)

A study of management systems, computer based or otherwise, in areas where the decision making process is semi-structured to unstructured. Emphasis is on corporate, upper-level strategic management and behavioral aspects of modern organization decision-making. Prerequisites: BUAD 3351, BUAD 3361, BUAD 3381, and BUAD 3771.

### BUAD 4456 Human Resources Management (3 credits)

Role of human resource management function: Strategic human resource management; equal employment opportunity (EEO); staffing; talent management and development; total rewards; compensation and benefits; risk management and worker protection; and employee and labor relations. Prerequisite: BUAD 3351.

### BUAD 4458 Entrepreneurship (3 credits)

Emphasizes the process of starting, financing, and managing a business of your own. Emphasis is on starting financing aspects, because of their uniqueness to small companies. Prerequisites: To be seriously considering starting a business, or to be actively engaged in operating a small business.

### BUAD 4467 Marketing Research (3 credits)

Fundamentals and techniques involved in gathering, recording, analysis, and presentation of data used in solving problems in marketing management. Requires the preparation and presentation of a research project. Prerequisite: BUAD 3361.

### BUAD 4468 Marketing Management (3 credits)

An integrative seminar focusing on the problems faced by marketing executive in administration of marketing operations including advertising, personal selling, channels, marketing research, and product development. Emphasizes the decisions that evolve around organizational issues and the implementation of strategic decisions. Prerequisites: BUAD 3361 and BUAD 4467.

### BUAD 4469 Small Business Case Analysis (3 credits)

Provides management counseling experience for students and involvement in a business problem solving experience. Prerequisites: BUAD 3351 and BUAD

### BUAD 4500 Compensation and Benefits (3 credits)

This course focuses on how managers can use compensation strategy to attract, retain, and motivate valued employees, while controlling labor costs. Part of the course revolves around application of principles to an ongoing case where students design all aspects of a compensation strategy. Shorter cases, as well as problem sets, will also be used. Prerequisite(s): BUAD 4456.

### BUAD 4507 Talent Acquisition (3 credits)

This course focuses on a specific area in Human Resources Management, namely personnel selection and placement. In seeking to improve the performance and retention of employees, organizations recognize the importance of hiring as an important means to this end. This course is designed to provide a conceptual understanding of personnel selection practices, and how these practices contribute as a human resource (HR) function to job performance, organizational efficiency, and organizational effectiveness. This course will examine important concepts in personnel selection such as reliability and validity, as well as provide an understanding of various types of selection tests and assessments in current practice. Thus, part of this course will provide the background necessary for the future practice and application of personnel selection activities. As the course progresses, continually ask yourself, "How can I improve selection and placement processes in organizations?" Prerequisite(s): BUAD 4456.

#### BUAD 4508 Training, Development, and Evaluation (3 credits)

Organizations are increasingly turning to training and development to help meet the challenges of today's rapidly changing workplace. This course is designed to provide students with an in depth study of the concepts, processes, and issues associated with training and developing human resources. Attention will be given to planning, designing, implementing, and evaluating training and development programs. Broader issues concerning employee development and training for specific needs will also be addressed. Prerequisite(s): BUAD 3351.

### BUAD 4509 Diversity and Inclusion (3 credits)

This course focuses on the importance of diversity and embracing diversity in organizations. Develop cultural competency and provides students with tools to meet the challenges of an increasingly diversified world. This course covers theories and legislation, global diversity as well as examines specific groups and categories. Prerequisite(s): BUAD 4456.

### BUAD 4550 Indigenous Entrepreneurship (3 credits)

The purpose of this course is to introduce students to Indigenous Entrepreneurship as a field of study. Focus on Indigenous business practices and entrepreneurship. Students will be exposed to the process of starting, financing, and managing a business. Emphasis is on Indigenous economies, which blend the bottom line approach and sustainable development. Prerequisite(s): BUAD 3450.

### BUAD 4559 Strategic Management (3 credits)

Presents the top management perspective in an organization in terms of formulating and implementing corporate strategy. Written and oral presentations are required. Prerequisites: BUAD 3351, BUAD 3361, BUAD 3381 or ACCT 3110, and BUAD 3771.

### BUAD 4568 Advanced Professional Selling (3 credits)

The purpose of this course is to build advanced professional selling skills with focus on areas of the sales process such as negotiating, sales presentation, and relationship-building skills. Role playing and interactive exercises will be emphasized. Prerequisite(s): BUAD 3568.

### BUAD 4600 Senior Seminar: Business Administration (1 credit)

Course consists of recommended common professional components (major core courses required for both Accounting and Business Administration majors), and preparation for and completion of assessment exams for all Business Administration majors. Assessment exams measure student knowledge of required basic core courses in accounting, economics, business law, statistics, computer business applications, management, marketing, finance, and strategic management. Test results allow the Business Administration department to compare departmental with national student outcomes and implement subsequent curriculum improvements. This course is required of all Business Administration, B.S. majors. Prerequisite(s): Completion of the required basic core. Course must be taken during the students last term of enrollment and graduation must follow at the end of that term.

### BUAD 4750 International Management (3 credits)

Introduction to the international perspectives of starting, managing, or working in an organization. This course places students in international environments via case studies focusing on the management of exporting, international licensing, creating international joint ventures, and developing wholly owned global subsidiaries. Prerequisites: BUAD 3351 and ECON 2100.

### BUAD 4779 Corporate Financial Policies (3 credits)

Analysis of financial concepts as they apply to financial decisions with an indepth study of the scope and nature of corporate finance. Prerequisite: BUAD

### BUAD 4800 Strategic Human Resource Management (3 credits)

This course examines the context of strategic human resource and develops a framework and conceptual model for the practice of strategic human resources and examines the actual practice and implementation of strategic human resources through discussing strategic issues that need to be addressed while developing specific programs and policies related to traditional functional areas of human resources. Prerequisite(s): BUAD 4456.

### BUAD 4910 Directed Independent Study (3 credits)

When taken as Readings in Business Administration, the following description applies: Research in one of the functional areas of management, finance, marketing, accounting, or real estate. Prerequisite: Major in Business Administration and consent of advisor.

### BUAD 4917 DIS Tchg Assoc | (1-2 credits)

Directed Independent Study | Teaching Associate

### BUAD 4970 Internship (1-12 credits)

Students serve in a full- or part-time supervised field position in business administration or computer information systems, in a public or private organization. Students are expected to demonstrate and contribute acquired knowledge and skills to the organization, and be exposed to more than routine, entry-level, or part-time staff business operations. Students should arrange for this class during the semester prior to the internship. Students may register for only one business administration or computer information systems internship during their BSU academic career. Upon completion, students will be required to report on their experience (daily journal and final comprehensive paper). The department recommends that students return to BSU for at least one semester upon internship completion. Graded Satisfactory/Unsatisfactory.

### **All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY 1920, 2920, 3920, 4920 DIRECTED GROUP STUDY 1930, 2930, 3930, 4930 EXPERIMENTAL COURSE 1940, 2940, 3940, 4940 IN-SERVICE COURSE 1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR 1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION 1970, 2970, 3970, 4970 INTERNSHIP 1980, 2980, 3980, 4980 RESEARCH 1990, 2990, 3990, 4990 THESIS