FINANCE (FNAN)

300 Level Courses

FNAN 300: Personal Financial Management. 3 credits.
Emphasis is on understanding the importance of developing financial goals and how financial decisions affect those goals throughout their lifetime. In addition, students will develop their own financial goals along with a financial plan that would enable them to meet those goals. This course may be taken for regular grading or S/NC. Students must notify instructor which option they want. FNAN 300 may be taken for general elective credit by School of Business students. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Special scale.

FNAN 303: Financial Management. 3 credits.
Introduction to the fundamental concepts, principles, and analytical tools in finance. Topics covered include time value of money, security valuation, capital budgeting, risk and return analysis, and cost of capital. Notes: School of Business students will not be permitted to make more than three attempts to achieve a C or higher in FNAN 303. The third attempt requires School of Business academic advisor approval. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information see the Termination from the Major section under Academic Policies. The final exam for FNAN 303 may be scheduled to take place for all sections at the same time during the final exam period. Accommodations will be made for exam and religious conflicts and for certain official university-sponsored activities. Offered by School of Business. Limited to two attempts.

Recommended Prerequisite: BUS 103 and BUS 200.

Registration Restrictions:
Required Prerequisites: (ACCT 203C, 204C, 209 or 210) and (BUS 210C or 211) and (MATH 108C, 113C, 114C, HNRT 225C, MATH U108, U113, U114 or HNRT U225).
C Requires minimum grade of C.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture, Recitation
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 311: Principles of Investment. 3 credits.
Introduces analysis of the valuation of equity and debt securities given modern capital market theory. Includes discussion of portfolio analysis as related to valuation of securities. Notes: Lecture, discussion, and computer-assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 301B or L301) or (FNAN 303B or L303).
B Requires minimum grade of B.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 321: Financial Institutions. 3 credits.
Discusses basic objectives of financial institutions in light of industry structure and regulatory environment, and decision variables that management should concentrate on to achieve objectives. Includes role of financial institutions in allocation of funds in financial markets. Notes: Lecture, discussion, and computer-assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 301B or L301) or (FNAN 303B or L303).
B Requires minimum grade of B.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 341: Introduction to Firm Valuation. 3 credits.
Examines techniques for analyzing, understanding, and applying financial information in decision situations. Topics include financial statement analysis, development of financial models, and financial planning and forecasting. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 301B or L301) or (FNAN 303B or L303).
B Requires minimum grade of B.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 351: Principles of Real Estate. 3 credits.
Studies dimensions and specialties involved in public control and private development, sale, finance, and management of real estate. Includes land planning, land-use control, appraisal, finance, brokerage, property management, and investment. Notes: Lecture, discussion, and computer-assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 301C or L301) or FNAN 303C or L303.
FNAN 411: Investment Analysis and Portfolio Management. 3 credits.
Analysis of modern techniques of portfolio management including evaluating standards for selecting individual securities to include or delete from portfolios. Presents risk-return analysis for portfolios and portfolio performance measures. Lecture, discussion, computer assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 303 or L303) or ((ACCT 303 or L303) or (ACCT 330 or L330)).
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 390: Introduction to Financial Planning. 3 credits.
This course provides an introduction to the financial planning process for students interested in a career in financial planning and wealth management. Course topics include education, insurance, and retirement planning. The course also will cover professional responsibilities and regulations governing the financial services industry. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 303 or L303) or ((ACCT 303 or L303) or (ACCT 330 or L330)).
B Requires minimum grade of B.

Students with a class of Freshman may not enroll.

Students in a Non-Degree Undergraduate degree may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

400 Level Courses

FNAN 401: Advanced Financial Management. 3 credits.
Analyzes decision-making in firm, emphasizing conceptual structure of problems and using advanced analytic techniques. Topics include current asset management, capital budgeting and structure, dividend policy, long-term financing, mergers, and corporate planning models. Notes: Lecture, discussion, and case analysis. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 303 or L303) or ((ACCT 303 or L303) or (ACCT 330 or L330)).
B Requires minimum grade of B.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 321: Futures and Options Markets. 3 credits.
Introduces options, commodity, and financial futures markets as they function to provide pricing mechanisms and alternative investment vehicles. Lecture, discussion, and computer-assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 311 or L311).
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 421: Money and Capital Markets. 3 credits.
Discussion of how financial markets are organized, their role in the allocation of funds to various market segments, and interaction between markets. Topics include aggregate flow of funds analysis; and money, government, corporate, and mortgage markets. Lecture, discussion, and computer assisted research. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 321 or L321).
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 430: Empirical Methods in Finance. 3 credits.
Examines statistical and econometric techniques used in analyzing financial data and developing financial models. Combines development of understanding of fundamental concepts with applications. Includes
extensive use of standard software. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Recommended Prerequisite:** BS degree status.

**Registration Restrictions:**

**Required Prerequisites:** (FNAN 311\textsuperscript{C} or 321\textsuperscript{C}).

\textsuperscript{C} Requires minimum grade of C.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 431: Venture Capital and Private Financing of Startups.** 3 credits.

This course focuses on how venture capitalists arrange the financing for a company; what they look for in a business plan; how they value a business; and how they structure the terms of an agreement. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Registration Restrictions:**

**Required Prerequisites:** FNAN 301\textsuperscript{B} or 303\textsuperscript{B}.

\textsuperscript{B} Requires minimum grade of B.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 432: Fixed-Income Securities.** 3 credits.

Focuses on analysis of fixed-income securities, including corporate and government bonds, mortgage-backed securities, and derivatives. Major topics include institutional features of fixed-income securities markets, valuation, analysis of risks, and portfolio management decisions. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Recommended Prerequisite:** BS degree status.

**Registration Restrictions:**

**Required Prerequisite:** (FNAN 311\textsuperscript{C}).

\textsuperscript{C} Requires minimum grade of C.

Non-Degree level students may not enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 436: Probability Methods for Finance.** 3 credits.

This course focuses on the development and use of probability models for analyzing risks and financial decisions. Emphasis is on Monte Carlo simulation modeling, linear programming, and decision analysis of complex problems in corporate finance and in investment analysis. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Registration Restrictions:**

**Required Prerequisites:** (FNAN 301\textsuperscript{C}, L301\textsuperscript{C}, 303\textsuperscript{C} or L303\textsuperscript{C}) and (OM 210\textsuperscript{C} or BUS 210\textsuperscript{C}).

\textsuperscript{C} Requires minimum grade of C.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 440: International Financial Management.** 3 credits.

Introduces management of contemporary firm's international financial operations. Topics include foreign exchange risk, political risk, returns and risks of international projects, international money and capital markets, financial accounting, capital structure, and cost of capital. Lecture, discussion, readings, and problems. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Registration Restrictions:**

**Required Prerequisites:** FNAN 301\textsuperscript{B} or 303\textsuperscript{B}.

\textsuperscript{B} Requires minimum grade of B.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 441: Advanced Topics in Firm Valuation.** 3 credits.

Course will focus on complex valuation techniques and build on the knowledge and skills developed in FNAN 341. Course will cover: research and value companies of different sizes, value private equity, mezzanine financing, develop advance discounted cash flow models, and other relevant topics. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Registration Restrictions:**

**Required Prerequisites:** FNAN 341\textsuperscript{C} or 302\textsuperscript{C}.

\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Undergraduate Regular scale.

**FNAN 451: Real Estate Finance.** 3 credits.

Studies mechanisms of real estate finance, sources of funds, loan contracts, principles of mortgage risk analysis, and secondary mortgage markets. Develops analytical skills including using microcomputer and appropriate software. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

**Registration Restrictions:**

**Required Prerequisites:** (FNAN 351\textsuperscript{C} or L351).

\textsuperscript{C} Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.
FNAN 454: Real Estate Development. 3 credits.
Examine commercial real estate development process and principles plus actual residential, office, retail, and industrial projects. Includes financial analytical techniques to investigate project feasibility, density, financing viability, cash flows, and valuation. Emphasis placed on real-world, entrepreneurial, decision-making skills for developing commercial real estate. Lecture, discussion, project analysis. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (FNAN 351C or L351).
C Requires minimum grade of C.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 462: Honors Seminar in Finance. 3 credits.
Provides an in-depth study and analysis of contemporary developments and topics of interest in finance. Topics and format will vary. Enrollment is limited and competitive. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major in Finance.

Non-Degree or Washington Consortium level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 477: Student Managed Investment Fund. 3 credits.
Provide each student with real world and hands-on experience in security analysis and portfolio construction through the management of the GMU Student Managed Investment Fund. Participants will collectively make investment decisions of the fund, the overall portfolio composition, and will employ various financial models used to assess sector, industry and individual security strength/weakness in their decision-making. Students will be required to perform the necessary quantitative and qualitative work, Bloomberg analysis, and present their research to all other fund members/faculty each semester. Security selection will be based on a diversified equity portfolio approach seeking to enhance risk-adjusted returns versus commonly used market benchmarks. Faculty and professional mentors will train students in the application of fundamental analysis and security selection through several lecture/workshop sessions. Increased interaction with the DC area investment community. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: FNAN 311B or 341B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 477: Student Managed Investment Fund. 3 credits.
Provide each student with real world and hands-on experience in security analysis and portfolio construction through the management of the GMU Student Managed Investment Fund. Participants will collectively make investment decisions of the fund, the overall portfolio composition, and will employ various financial models used to assess sector, industry and individual security strength/weakness in their decision-making. Students will be required to perform the necessary quantitative and qualitative work, Bloomberg analysis, and present their research to all other fund members/faculty each semester. Security selection will be based on a diversified equity portfolio approach seeking to enhance risk-adjusted returns versus commonly used market benchmarks. Faculty and professional mentors will train students in the application of fundamental analysis and security selection through several lecture/workshop sessions. Increased interaction with the DC area investment community. Offered by School of Business. Limited to two attempts.

Registration Restrictions:
Required Prerequisites: FNAN 311B or 341B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 491: Special Topics in Finance. 3 credits.
Advanced study of special topics in finance. Offered by School of Business. May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisites: (FNAN 301C or L301) or FNAN 303C.
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.

FNAN 492: Internship in Finance. 3 credits.
Opportunity to gain practical, professional experience in conjunction with academic development. An internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or FNAN 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business Office of Career Services for internal eligibility requirements. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, BUS 492, MGMT 492, MIS 492, MKTG 492, OM 492, OSCM 492.

Recommended Prerequisite: 75 credit hours

Registration Restrictions:
Required Prerequisites: FNAN 301B or 303B.
B Requires minimum grade of B.

Schedule Type: Lecture
Grading:
This course is graded on the Undergraduate Regular scale.
FNAN 493: Financial Planning Capstone Internship. 3 credits. Financial planners need unique skills and knowledge to successfully serve clients. Students will learn the cognition and decision-making of clients and planners, the techniques to facilitate effective counsel, and the planners’ professional responsibilities including those of the CFP(c) Board. Students will apply their knowledge through an internship in which they will create a financial plan for an actual client. A third attempt will require academic advisor approval. Offered by School of Business. May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 493.

Recommended Corequisite: FNAN 411

Registration Restrictions:
Required Prerequisites: FNAN 390^C, 311^C, ACCT 351^C and 441^C.
^C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.

Non-Degree level students may not enroll.

FNAN 498: RS: Contemporary Topics in Finance. 3 credits. Course focuses on contemporary topics in finance and will be writing Intensive. Possible topics include: financial institutions, asset pricing, valuation and capital markets, 2008 crisis and the Federal Reserve/Treasury’s intervention, emerging economies and exchange rate conversion, stability of the European Union and its currency. A third attempt will require academic advisor approval. Offered by School of Business. Limited to two attempts.

Specialized Designation: Research/Scholarship Intensive, Writing Intensive in Major

Registration Restrictions:
Required Prerequisites: FNAN 341^C, 311^C, 321^C or 401^C.
^C Requires minimum grade of C.

Non-Degree level students may not enroll.

FNAN 499: Independent Study. 1-3 credits. May be repeated to a maximum of 6 credits if topics vary. Degree status. Research and analysis of selected problems or topics in finance. Notes: Must be arranged with instructor and approved in writing by associate dean for undergraduate programs before registration. Written report required. May be repeated if topics vary. Offered by School of Business. May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Finance majors with at least 9 upper-level credit hours.

Registration Restrictions:
Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Schedule Type: Independent Study
Grading:
This course is graded on the Undergraduate Regular scale.