

ART

An Exploration of Illness and Wellness in Art

- I. ART FUNDAMENTALS 25%
- A. Introduction to Art History
1. Methods and Inquiries of Art History
 - a. The Nature of Art Historical Inquiry
 - b. Sources, Documents, and the Work of Art Historians
 - c. The Development of Art History
 2. Brief Overview of Art in the Western World
 - a. Ancient Civilizations
 - b. Greek and Roman Art
 - c. Early Christian and Medieval Art
 - d. The Renaissance and Baroque
 - e. Rococo, Neoclassicism, and Romanticism
 - f. Realism and Impressionism
 - g. Post-Impressionism and Other Late Nineteenth-Century Developments
 - h. The Emergence of Modernism
 - i. Abstraction
 - j. Pop Art, Minimalism, and Photo Realism
 - k. Earthworks, Installations, and Performance
 3. Brief Overview of Non-Western Art
 - a. Asian Art
 - b. African and Oceanic Art
 - c. Islamic Art
 - d. The Americas
- B. Elements of Art
1. Formal Qualities of Art
 - a. Line
 - b. Shape and Form
 - c. Perspective
 - d. Color
 - e. Texture
 - f. Composition
 2. Processes and Techniques
 - a. Drawing
 - b. Printmaking
 - c. Painting
 - d. Photography
 - e. Sculpture
 - f. Mixed Media
 - g. Performance
 - h. Craft and Folk Art
 - i. Architecture

- II. ART AND THE PLAGUE 15%
- A. Representing the Bubonic Plague in Early Modern Europe
1. SELECTED WORK: PIETER BRUEGEL THE ELDER, *THE TRIUMPH OF DEATH*, c.1562
 2. SELECTED WORK: JOSSE LIEFERINXE, *ST. SEBASTIAN INTERCEDING FOR THE PLAGUE STRICKEN*, 1497–99
- B. The AIDS Crisis and Contemporary Art
1. SELECTED WORK: KEITH HARING, *ALTARPIECE*, 1990/1996, CATHEDRAL OF SAINT JOHN THE DIVINE
 2. SELECTED WORK: DAVID WOJNAROWICZ, *UNTITLED (FALLING BUFFALOS)*, 1988–89
- III. THE RISE OF MODERN MEDICINE 20%
- A. The Professionalization of Medical Practice from the Renaissance through the Twentieth Century
1. SELECTED WORK: FILIPPO BRUNELLESCHI, *OSPEDALE DEGLI INNOCENTI*, c.1419, FLORENCE, ITALY
 2. SELECTED WORK: REMBRANDT VAN RIJN, *THE ANATOMY LESSON OF DR. NICOLAES TULP*, 1632
 3. SELECTED WORK: THOMAS EAKINS, *PORTRAIT OF DR. SAMUEL D. GROSS (THE GROSS CLINIC)*, 1875
 4. SELECTED WORK: KADIR NELSON, *HENRIETTA LACKS (HELA): THE MOTHER OF MODERN MEDICINE*, 2017
 5. SELECTED WORK: HOK WITH JACK TRAVIS, *HARLEM HOSPITAL PAVILION FACADE*, 2005–12, NEW YORK
- IV. WOMEN, SICKNESS, AND PORTRAITURE 10%
- A. The Ideal and the Real Female Body as a Subject in Nineteenth- and Twentieth-Century Art
1. SELECTED WORK: JAMES ABBOTT MCNEILL WHISTLER, *MAUD READING IN BED*, 1883–84
 2. SELECTED WORK: FRIDA KAHLO, *WITHOUT HOPE (SIN ESPERANZA)*, 1945
- V. NEURASTHENIA AND VITALITY IN TURN OF THE CENTURY ART 15%
- A. Neurasthenia and the New Woman in American Art at the Turn of the Twentieth Century
1. SELECTED WORK: THOMAS WILMER DEWING, *A READING*, 1897
 2. SELECTED WORK: JOHN SINGER SARGENT, *MR. AND MRS. I. N. PHELPS STOKES*, 1897
 3. SELECTED WORK: FRANCIS PICABIA, *AGNES MEYER*, 1915
- VI. ART AND MENTAL HEALTH 15%
- A. The Othering of Mental Illness in Art
1. SELECTED WORK: WILLIAM HOGARTH, *ILLUSTRATION OF BEDLAM FROM A RAKE'S PROGRESS*, 1735

2. SELECTED WORK: THÉODORE GÉRICAULT, *THE MADWOMAN*, 1819–20
- B. Representing the Experience of Mental Illness in Art
1. SELECTED WORK: FRANCISCO GOYA, *THE SLEEP OF REASON PRODUCES MONSTERS (EL SUEÑO DE LA RAZON PRODUCE MONSTRUOS)*, 1799
 2. SELECTED WORK: VINCENT VAN GOGH, *THE STARRY NIGHT*, 1889

ECONOMICS

An Introduction to Economics and Health Economics

- I. FUNDAMENTAL ECONOMIC CONCEPTS 10%
 - A. Basic Assumptions of Economics
 - 1. Scarcity
 - 2. Trade-offs
 - 3. Opportunity Cost
 - 4. Rationality
 - 5. Gains from Trade
 - B. Models and Economic Theory
 - C. Positive and Normative Economics
 - D. Efficiency as a Goal
 - E. Microeconomics and Macroeconomics

- II. MICROECONOMICS 40%
 - A. Perfectly Competitive Markets
 - 1. Markets
 - 2. Demand
 - 3. Shifts in the Demand Curve
 - a. Income
 - b. The prices of related goods
 - c. Tastes
 - d. Expectations
 - e. Number of buyers
 - 4. Supply
 - 5. Shifts in the Supply Curve
 - a. Input prices
 - b. Technology
 - c. Expectations
 - d. Number of sellers
 - 6. Equilibrium
 - 7. The Characteristics of Competitive Market Equilibrium
 - B. Applications of the Competitive Market Model
 - 1. Changes in Market Equilibrium
 - 2. Elasticity
 - 3. Using Elasticity
 - C. Evaluating Government Policy: The Impact of Price Controls and Taxes
 - 1. Price Controls
 - 2. Taxes
 - D. International Trade
 - 1. An Isolated Economy
 - 2. Adding the Opportunity to Trade
 - 3. Comparative Advantage and the Gains from Trade
 - 4. The Political Economy of Trade

- E. The Profit Motive and the Behavior of Firms
 - 1. Economic Profits and Accounting Profits
 - 2. Finding the Firm's Supply Curve
 - 3. Entry, Exit, and the Market Supply Curve
- F. Imperfect Competition
 - 1. Monopoly
 - 2. Monopoly Supply
 - 3. Welfare Consequences of Monopoly
 - 4. Dealing with Monopolies
 - 5. Price Discrimination
 - 6. Oligopoly
 - 7. Monopolistic Competition
- G. Creative Destruction: The Profit Motive and the Sources of Economic Change
- H. Market Failures
 - 1. Externalities
 - 2. The Effect of Externalities on Resource Allocation
 - 3. Private Responses to Externalities
 - 4. Government Regulation of Externalities
 - 5. Property Rights
 - 6. The Effects of Private Ownership
 - 7. Public and Private Goods
 - a. Private goods
 - b. Common resources
 - c. Collective goods
 - d. Public goods
- I. Institutions, Organizations, and Government
 - 1. Pork Barrel Politics
 - 2. Rent-Seeking
 - 3. What Is the Proper Role for Government?

III. MACROECONOMICS

30%

- A. Macroeconomic Issues
 - 1. Economic Growth and Living Standards
 - 2. Recessions and Expansions
 - 3. Unemployment
 - 4. Inflation
 - 5. International Trade
- B. Macroeconomic Measurement
 - 1. Measuring Total Output: Gross Domestic Product
 - a. Market value
 - b. Final goods and services
 - c. Within a country
 - d. During a specified period
 - 2. Understanding What GDP Measures
 - 3. Other Ways to Measure GDP: Expenditures Equal Production
 - 4. Yet Another Way to Measure GDP: Income Equals Production Equals

- Expenditures
- 5. Real GDP
- 6. Measuring Inflation
- 7. Unemployment
 - a. Frictional unemployment
 - b. Structural unemployment
 - c. Cyclical unemployment
- C. Economic Growth, Productivity, and Living Standards
 - 1. The Circular Flow Model of the Economy
 - 2. What Determines How Much an Economy Produces?
- D. Savings, Investment, and the Financial System
 - 1. Financial Markets
 - a. The bond market
 - b. The stock market
 - 2. Financial Intermediaries
 - a. Banks
 - b. Mutual funds
 - 3. Saving and Investment in Aggregate
 - 4. International Capital Flows in an Open Economy
 - 5. How Financial Markets Coordinate Saving and Investment Decisions
- E. Money and Prices in the Long Run
 - 1. What Is Money?
 - 2. Measuring Money
 - 3. The Federal Reserve System, Banks, and the Supply of Money
 - 4. Bank Runs
 - 5. Money and Inflation in the Long Run
 - 6. Why Worry about Inflation?
- F. Short-Run Economic Fluctuations
 - 1. Characteristics of Short-Run Fluctuations
 - 2. Potential Output, the Output Gap, and the Natural Rate of Unemployment
 - 3. Explaining Short-Run Fluctuations in Output
 - 4. The Aggregate Demand Curve
 - a. Wealth effects
 - b. Interest rate effects
 - c. Foreign exchange effects
 - 5. The Aggregate Supply Curve
 - 6. The Keynesian Model of Short-Run Fluctuations
 - 7. Inflation in the Keynesian Model
 - 8. Using Fiscal and Monetary Policy to Stabilize the Economy

IV. AN INTRODUCTION TO HEALTH ECONOMICS 20%

- A. Why Is Health Economics Important?
 - 1. Why Is Health Economics Different? (Arrow, 1962) → Non-marketability of Key Goods, Durable Health Capital, Uncertainty, Asymmetric Information, Externalities
 - 2. The Importance of Health Economics in Public Policy
- B. The Demand for Health—The Grossman Model

1. Health Is Both a Consumption Good and an Investment Good
2. Socioeconomic Status, Income, and Health
3. Estimating the Value of Life
- C. Downward-Sloping Demand for Health Care
 1. RAND Health Insurance Experiment
 2. Oregon Medicaid Experiment
- D. The Link Between Socioeconomic Status (SES) and Health
 1. The Efficient Producer Hypothesis
 2. The Thrifty Phenotype Hypothesis and the Dutch Famine Study
 3. The Allostatic Load Hypothesis
- E. Health Insurance Demand
 1. Declining Marginal Utility of Income
 2. Anatomy of a Health Insurance Contract (Premiums, Cost-sharing, Gate-keeping)
 3. Uncertainty, Risk Aversion, and the Demand for Health Insurance
- F. Information Asymmetry in Health Insurance and Its Consequences
 1. Moral Hazard
 2. Adverse Selection
- G. Physician Labor Markets
 1. Physician Education and Training
 2. Health Reform and Use of Non-Physician Labor
- H. Hospitals and Other Health Care Facilities
 1. The Rise and Fall of the Hospital and Hospital Stay
 2. Hospital Competition and Health Care Prices
- I. Regulation of the Market for Prescription Drugs
 1. Drug Development and Testing
 2. Patents and Drug Pricing
- J. The American Health Care System
 1. Private Health Care Provision
 2. Private Health Insurance Markets
 - a. Employer-provided insurance
 3. Publicly Financed Insurance
 - a. Medicare
 - b. Medicaid
 - c. The Affordable Care Act
- K. Health Care Systems Around the World
 1. The Beveridge Model
 - a. Universal single-payer insurance
 - b. Public health care provision
 - c. Free or low-cost care
 2. The Bismarck Model
 - a. Universal insurance
 - b. Community rating
 - c. Regulated private health care provision

LITERATURE

An Exploration of Illness and Wellness in Literature

- I. CRITICAL READING 15%
 - A. Purpose and Main Idea
 - B. Structure
 - C. Restatement of Information
 - D. Genres and their Characteristics
 - E. Language and Tone
 - F. Grammar and Syntax
 - G. Vocabulary in Context
 - H. Diction

- II. MARY SHELLEY'S *FRANKENSTEIN* (1818) 45%
 - A. *Frankenstein* and the Theme of "In Sickness and in Health"
 - B. Biographical Contexts for the Novel
 - C. The Birth of *Frankenstein*
 - D. Editions of the Novel
 - E. Volume and Chapter Summaries and Analyses
 - F. Scientific and Cultural Contexts for the Novel
 - 1. Materialist vs. Vitalist Debates
 - 2. Monsters
 - 3. Body Snatching and Grave Robbing
 - 4. Reanimation and Resuscitation
 - G. Settings
 - 1. The Arctic
 - 2. Geneva and Lake Geneva
 - 3. The French Alps and Mont Blanc
 - H. Literary Movements and Genres
 - 1. Romanticism
 - 2. The Gothic
 - I. Allusions
 - 1. Greek Mythology—Prometheus
 - 2. Milton's *Paradise Lost*
 - J. Elements of Nature
 - K. The Sublime
 - L. Narrative Elements
 - 1. Frame Narratives
 - 2. Unreliable Narrator
 - 3. Epistolary Fiction
 - M. Contemporary and Current Critical Responses
 - 1. Contemporary Criticism
 - 2. Current Criticism

- a. Health humanities criticism
- b. Disability studies criticism
- c. Feminist and gender studies criticism
- d. Postcolonial criticism

N. *Frankenstein's* Onscreen Afterlife

III. SHORTER SELECTIONS

40%

A. The Shorter Selections and the Theme of “In Sickness and in Health”

B. Nonfiction

- 1. Autobiography and Illness Narratives
- 2. SELECTED WORK: “ON BEING A CRIPPLE” (1986) BY NANCY MAIRS
 - a. Nancy Mairs (1943–2016): background and biography
 - b. Analysis of “On Being A Cripple”
- 3. SELECTED WORK: “PONY PARTY” AND “LUCK” FROM *AUTOBIOGRAPHY OF A FACE* (1994) BY LUCY GREALY
 - a. Lucy Grealy (1963–2002): background and biography
 - b. Analysis of “Pony Party”
 - c. Analysis of “Luck”

C. Fiction: Short Story

- 1. SELECTED WORK: “THE BIRTHMARK” (1843) BY NATHANIEL HAWTHORNE
 - a. Nathaniel Hawthorne (1804–64): background and biography
 - b. Analysis of “The Birthmark”

D. Poetry

- 1. SELECTED WORK: “ODE TO A NIGHTINGALE” (1819) BY JOHN KEATS
 - a. John Keats (1795–1821): background and biography
 - b. Analysis of “Ode to a Nightingale”
- 2. SELECTED WORK: “IN THE THEATRE” (1977) BY DANNIE ABSE
 - a. Dannie Abse (1923–2014): background and biography
 - b. Analysis of “In the Theatre”
- 3. SELECTED WORK: “DEAR WORLD” (1988) BY PAULA GUNN ALLEN
 - a. Paula Gunn Allen (1939–2008): background and biography
 - b. Analysis of “Dear World”
- 4. SELECTED WORK: “WHAT THE DOCTOR SAID” (1989) BY RAYMOND CARVER
 - a. Raymond Carver (1938–88): background and biography
 - b. Analysis of “What the Doctor Said”
- 5. SELECTED WORK: “THE SICK WIFE” (1996) BY JANE KENYON
 - a. Jane Kenyon (1947–95): background and biography
 - b. Analysis of “The Sick Wife”
- 6. SELECTED WORK: “WHAT YOU MOURN” (2007) BY SHEILA BLACK
 - a. Sheila Black (b. 1961): background and biography
 - b. Analysis of “What You Mourn”
- 7. SELECTED WORK: “HEALTH” (2010) BY RAFAEL CAMPO
 - a. Rafael Campo (b. 1964): background and biography
 - b. Analysis of “Health”

MATHEMATICS

Algebra and Trigonometry

I. ALGEBRA

60%

A. Basic Properties of the Real Numbers

B. Linear and Quadratic Equations

1. Linear Equations
2. Quadratic Equations
 - a. Equations of the form $x^2 - p = 0$
 - b. Equations of the form $k(x + r)^2 - p = 0$, where $k \neq 0$
 - c. Equations of the form $ax^2 + bx + c = 0$, where $a \neq 0$
 - d. The discriminant

C. Polynomial Equations

1. Equivalent Polynomials
2. Addition and Subtraction of Polynomials
3. Multiplication of Polynomials
4. Division of Polynomials
5. Division of Polynomials and Solving Polynomial Equations
6. Proof of the Rational Root Theorem
7. Proof of the Factor Theorem
8. Complex Numbers
 - a. Addition of complex numbers
 - b. Multiplication of complex numbers
 - c. Division of complex numbers

D. Functions

1. Preliminaries
2. Definition of a Function
3. Many-to-One Functions versus One-to-One Functions
4. Inverse Functions

E. Graphing

1. The Graph of a Linear Function $y = ax + b$
2. The Graph of a Quadratic Function $y = ax^2 + bx + c$
 - a. The case $y = x^2$
3. The Graphs of Polynomials
4. The Graph of the Exponential Function $y = a^x$
5. The Graph of the Logarithmic Function $y = \log_a x$
6. Transformations of Graphs
 - a. Graphing $y = f(x + c)$ from the graph of $y = f(x)$

- b. Graphing $y = f(x) + C$ from the graph of $y = f(x)$
- c. Graphing $y = f(ax)$ from the graph of $y = f(x)$
- d. Graphing $y = Af(x)$ from the graph of $y = f(x)$

F. Non-polynomial Equations

- 1. Rational Equations
 - a. Solving rational equations
 - b. Graphs of rational functions
- 2. Exponential Equations
 - a. Basic properties
 - b. Solving exponential equations
- 3. Logarithmic Equations
 - a. Basic properties
 - b. Solving logarithmic equations
- 4. Radical Equations
 - a. Method 1
 - b. Method 2

G. Inequalities

- 1. Linear Inequalities
- 2. Quadratic Inequalities
 - a. Inequalities of the form $ax^2 + bx + c > 0$ and $a > 0$
 - b. Inequalities of the form $ax^2 + bx + c < 0$ and $a > 0$

H. Coordinate Geometry

- 1. The Pythagorean Theorem
- 2. Points
- 3. Lines
 - a. Slope form
 - b. Point-point form
 - c. Slope-point form
 - d. Mutual positions of lines
- 4. Circles
- 5. Solving Geometry Problems Using Coordinate Geometry

II. TRIGONOMETRY

40%

A. Trigonometric Functions

- 1. The Sine Function for Acute Angles
- 2. The Tangent Function for Acute Angles
- 3. The Cosine and Cotangent Functions for Acute Angles
- 4. Relations among Trigonometric Functions
- 5. Trigonometric Functions of Special Angles
- 6. Trigonometric Functions of Angles of Any Measure
 - a. Definitions and properties

- b. Negative angles
- 7. Trigonometric Identities
 - a. Sum and difference identities
 - b. Double-angle identities
 - c. Half-angle identities
 - d. Sum-to-product identities
 - e. Product-to-sum identities
- 8. Graphs of Trigonometric Functions
- 9. Inverse Trigonometric Functions
- 10. Trigonometric Equations
- 11. The Law of Sines and Cosines
- 12. Radians

MUSIC

'Til Death Do Us Part: Mortality Made Musical

- I. BASIC ELEMENTS OF MUSIC THEORY 20%
 - A. Sound and Music
 - 1. Definitions
 - a. Music is sound organized in time
 - b. Music of the Western world
 - 2. Physics of Musical Sound
 - a. Sound waves
 - b. Instruments as sound sources
 - B. Pitch, Rhythm, and Harmony
 - 1. Pitch
 - a. Pitch, frequency, and octaves
 - b. Pitch on a keyboard
 - c. Pitch on a staff
 - d. Pitch on the grand staff
 - e. Overtones and partials
 - f. Equal temperament: generating the twelve pitches by dividing the octave
 - g. Scales: leading tone, tonic, dominant
 - h. Intervals
 - i. Intervals of the major scale
 - j. Minor scales and blues inflections
 - k. Melody defined; example, using scale degrees
 - l. Contour
 - m. Range and tessitura
 - 2. Rhythm
 - a. Beat
 - b. Tempo
 - c. Meter: duple, triple, and quadruple
 - d. Rhythmic notation
 - e. Time signature
 - f. Simple and compound subdivision
 - g. Mixed and irregular meter
 - h. Syncopation
 - i. Polyrhythm
 - 3. Harmony
 - a. Common-practice tonality
 - b. Chords
 - i. Triads
 - ii. Inversions
 - c. Keys
 - i. Keys and key signatures
 - ii. Hierarchy of keys: circle of fifths

- d. Harmonic progression
 - i. Dissonance and consonance
 - ii. Diatonic triads
 - iii. The dominant triad's special role
 - iv. Bass lines
 - v. The dominant seventh chord
 - vi. Example: a harmonized melody
 - e. Other diatonic chords
 - f. Chromatic harmonies and modulation
 - g. Beyond common practice
- C. Other Aspects of Musical Sound
- 1. Texture, Counterpoint, Instrumentation, More Timbre
 - 2. Dynamics, Articulation, Ornamentation
- D. Form in Music
- 1. Perceiving Musical Form
 - 2. Elements of Form
 - a. Motive
 - b. Phrase
 - c. Cadence
 - d. Theme
 - e. Introduction and coda
 - 3. Common Forms
 - a. Repetition
 - b. Variation
 - i. Theme and variations
 - ii. 12-bar blues
 - iii. Improvisation
 - c. Contrast
 - i. Ternary and rondo forms
 - ii. 32-bar form
 - iii. Verse-chorus form
 - d. Development
 - i. Fugue
 - ii. Sonata form
- E. Which Is the Real Music? Scores, Recordings, and Performance
- II. CHURCH, HOME, STAGE: DEATH KNOWS NO BOUNDARIES 30%
- A. The Middle Ages: Rome, France, and Christianity
- 1. Regulating Ritual—The Liturgy
 - a. Mass
 - b. Offices
 - c. Proper and Ordinary
 - 2. Chant: A Little Bird Told Me
 - 3. Dreading Death
 - 4. LISTENING EXAMPLE 1: “DIES IRAE” – EXCERPT (13TH CENTURY) – ANONYMOUS

- a. Enough Is Enough: The Council of Trent
 - b. Subsequent “Life” for a Death Chant
- B. The Renaissance: Music in the Home and Courts
 - 1. New Genres, New Media
 - 2. Death, Be Kind
 - 3. LISTENING EXAMPLE 2: “O DEATHE, ROCK ME ASLEEPE” (C. 1536) – ANNE BOLEYN (ATTRIBUTED)
- C. The Baroque: Music Reaches the Stage
 - 1. The Florentine Camerata and Monody
 - 2. The Actors Start to Sing
 - 3. Music Conquering Death
 - 4. LISTENING EXAMPLE 3: *L’ORFEO*, “TU SE’ MORTA” [ORFEO’S LAMENT] (1607) – CLAUDIO MONTEVERDI
 - 5. Opera Hits the Road (and Goes Public)
 - 6. The Continuo Age
 - 7. Death, Invited
 - 8. LISTENING EXAMPLE 4: *DIDO AND AENEAS*, “THY HAND, BELINDA/WHEN I AM LAID IN EARTH” [DIDO’S LAMENT] (1689) – HENRY PURCELL
 - 9. Dying on Stage
- D. The Classic Period: Patrons and the Public
 - 1. Pursuing Happiness
 - 2. A Changing World
 - 3. Death, Unfinished
 - 4. LISTENING EXAMPLE 5: REQUIEM, K. 626 “SEQUENCE: LACRIMOSA DIES ILLA” (1791) – WOLFGANG AMADEUS MOZART

III. MUSIC OF THE ROMANTIC ERA: DEATH AS DRAMA 23%

- A. Hearts on Sleeves
- B. Tiny Jewels: The Romantic Miniature
 - 1. Death as Tempter
 - 2. LISTENING EXAMPLE 6: “ERLKÖNIG,” OP. 1, D. 328 (1815) – FRANZ SCHUBERT
- C. Music Goes Massive
 - 1. Death, Diabolically
 - 2. LISTENING EXAMPLE 7: *SYMPHONIE FANTASTIQUE*, MVT. V “DREAM OF A WITCHES’ SABBATH” (1830) – HECTOR BERLIOZ
 - 3. From the Concert Halls to the Movies
- D. The Swan Song
 - 1. Death, Alone
 - 2. LISTENING EXAMPLE 8: *SECHS LIEDER*, OP. 1, NO. 1 “SCHWANENLIED” (PUB. 1846) – FANNY MENDELSSOHN HENSEL
- E. Opera on a Grand Scale
 - 1. Death, Together
 - 2. LISTENING EXAMPLE 9: *AIDA*, “O TERRA, ADDIO” [THE TOMB SCENE] (1871) – GIUSEPPE VERDI

IV. MUSIC AS MOCKERY, MUSIC AS MEMORIAL 27%

- A. A Funeral March
 - 1. Death So “Sad”
 - 2. LISTENING EXAMPLE 10: SYMPHONY NO. 1 IN D MAJOR “THE TITAN,” MVT. III “FEIERLICH UND GEMESSEN, OHNE ZU SCHLEPPEN” (1888/REV. 1906) – GUSTAV MAHLER
- B. Art, Present and Past
 - 1. Dancing to Death
 - 2. LISTENING EXAMPLE 11: *THE RITE OF SPRING*, “SACRIFICIAL DANCE (THE CHOSEN ONE)” (1913) – IGOR STRAVINSKY
- C. Musical Monuments
 - 1. Flying to Death
 - 2. LISTENING EXAMPLE 12: *LE TOMBEAU DE COUPERIN*, “TOCCATA” (1917) – MAURICE RAVEL
- D. New Sounds, Old Terrors
 - 1. Death Approaches
 - 2. LISTENING EXAMPLE 13: *THE BANSHEE* (C. 1925) – HENRY COWELL
 - 3. Concert Hall Threnodies
 - 4. A Medieval Sequence and the Silver Screen
- E. Music for Grief
 - 1. Music as Therapy
 - 2. Measuring the Music (Therapeutically)
 - 3. Repurposed for Death
 - 4. LISTENING EXAMPLE 14: *ADAGIO FOR STRINGS* (ARRANGEMENT OF STRING QUARTET IN B MINOR, OP. 11, MVT. II) (1938) – SAMUEL BARBER

SCIENCE

An Introduction to the Biology of Cancer

- I. CELLS AND THE DEVELOPMENT OF CANCER 25%
 - A. An Introduction to Cells
 - 1. Cell Structure
 - a. Nucleus and DNA
 - b. Organelles
 - c. Cytoskeletal Elements and the Cell Membrane
 - 2. Cell Function
 - a. General cell activities
 - b. Differentiated cellular function
 - 3. The Cell Cycle and Cell Division
 - a. Interphase (G1, S, G2)
 - b. Mitosis (prophase, prometaphase, metaphase, anaphase, telophase) and cytokinesis
 - c. Cell cycle checkpoints
 - 4. Cell Death
 - a. Apoptosis
 - b. Necrosis
 - c. Other types of cell death
 - B. The Development of Cancer
 - 1. Gene Changes
 - a. Proto-oncogenes/oncogenes
 - b. Tumor suppressor genes
 - c. DNA repair genes
 - 2. Tumors
 - a. The formation of tumors
 - b. Tumor types
 - 3. Angiogenesis and Metastasis
- II. CAUSES OF CANCER: THE ROLE OF GENETICS AND THE ENVIRONMENT 25%
 - A. Genetics
 - B. Age
 - C. Obesity
 - 1. Insulin
 - 2. Sex Hormones
 - 3. Growth Factors
 - D. Diseases
 - 1. Viral Causes
 - a. Epstein-Barr virus
 - b. Kaposi's sarcoma-associated herpesvirus/human herpesvirus 8
 - c. Human papillomavirus
 - d. Human T-lymphocyte virus-1
 - 2. Bacterial Causes

3. Autoimmune Diseases
4. Other Disease States Associated with Cancer
- E. Environmental Exposure
 1. Tobacco and Smoking
 2. Alcohol
 3. Pollution
 4. Other Environmental Cancer-Causing Agents
 - a. Asbestos
 - b. Radon
 - c. UV radiation

III. THE PREVENTION, DETECTION, AND PROGRESSION OF CANCER 25%

- A. Early Detection and Prevention
 1. Screening Tests
 - a. Fecal occult blood, colonoscopy, and other colon cancer screening methods
 - b. Breast exams and mammograms to screen for breast cancer
 - c. Pap smear, HPV testing, HPV vaccination, and CA-125 to detect reproductive cancers
- B. Diagnosis
 1. Symptoms
 2. Biopsy
 - a. Grading
 - b. Staging

IV. TYPES AND TREATMENT OF CANCER 25%

- A. Types of Cancer
 1. Carcinomas
 2. Adenocarcinomas
 3. Melanomas
 4. Sarcomas
 - a. Osteosarcomas
 5. Lymphoma
 6. Leukemia
 7. Myeloma
 8. Blastoma
- B. Treatments for Cancer
 1. Chemotherapy
 - a. What is chemotherapy?
 - b. Administration of chemotherapy
 - c. Side effects of treatment
 - d. Examples of chemotherapeutic agents
 2. Radiation Treatment
 3. Surgery
 4. Combining Chemotherapy, Radiation Therapy, and Surgery
 - a. Surgery and chemotherapy
 - b. Surgery and radiation

- c. Chemotherapy and radiation
- 5. Immunotherapy
 - a. Immune checkpoint inhibitors
 - b. Adoptive cell transfer
 - c. Other types of immunotherapy

SOCIAL SCIENCE

An Introduction to the History of Healthcare

- I. HEALTHCARE IN THE ANCIENT WORLD 20%
 - A. Defining the Relationship Between Health, the Theory and Practice of Medicine, and Disease
 - B. Understanding the Role of the Healer Across Time and Place
 - C. The Terms “Science,” “Reason,” “Magic,” and “Superstition”
 - D. Patterns of Life and Death in the Past
 - 1. Health and Disease in Prehistory
 - 2. Civilization and the Cradle of Disease
 - E. The Early Textual Traditions of Medicine
 - 1. Mesopotamian Medicine
 - 2. Egyptian Medicine
 - 3. Indian and Chinese Medicine
 - 4. Greece and the Origins of the Western Medical Tradition
 - a. Homer’s *Iliad*
 - b. The Cult of Asclepius
 - F. Hippocratic Medicine as Greek Natural Philosophy
 - 1. Naturalism and Secularism in the Hippocratic Writings
 - 2. Hippocratic Ethics

- II. HEALTHCARE FROM THE FIRST CENTURY CE TO THE SCIENTIFIC REVOLUTION 25%
 - A. Reason, Secularism, and Interpreting the Greeks as the Founders of the Western Tradition
 - B. Greek Medicine in the Roman Empire
 - 1. Galen of Pergamon: The “Roman Hippocrates”?
 - a. The influence of Greek philosophy on Galen’s views of Hippocratic medicine
 - b. The Hippocratic Oath and the medical ethics of Galen
 - 2. Practical Healthcare in the Western World
 - C. Slave Medicine, the Roman Army, and the Origins of the Western Hospital (*Valetudinarium*)
 - D. The Greco-Roman Tradition after the Fall of the Roman Empire
 - 1. The Greco-Roman Tradition in the East and the Rise of the Islamic Golden Age
 - 2. The Greco-Roman Tradition in the West and “Pagan” Philosophy in Christian Thought
 - E. Medieval Healthcare Institutions
 - 1. The Church, Hospitals, and Institutionalized Philanthropy
 - 2. Healthcare and the Teachings of the Early and Medieval Church
 - 3. Medieval Hospitals and the Influence of Galen
 - 4. Medieval Hospitals and Archeological Evidence
 - 5. Lazar Houses
 - F. The Greco-Roman Magico-Religious Tradition and Christian Belief
 - G. Medieval Medicine: From Prosperity to the Black Death

1. Scholastic Medicine and the Status of Learned Physicians
 2. The Growth of Universities
 3. The Use of Galenic Therapies
 4. The Role of Mathematics
 5. The Influence of Astrology
 6. Medieval Surgery
 7. Apothecaries, Surgeons, and the Formation of Guilds
- H. The Black Death and Epidemic Plague
1. Modern-Day Investigations into the Plague
 2. Violent Responses to the Plague
 3. Socioeconomic Impacts of the Plague
 4. The Plague's Effect on Late Medieval Medicine

III. MEDICAL THEORY AND PRACTICE DURING THE SCIENTIFIC REVOLUTION 15%

- A. The Renaissance, Renaissance Humanism, and the Origins of the Scientific Revolution
1. Dante Alighieri
 2. Renaissance Art
 3. Copernicus' *De Rev.*
 4. Exploration and Colonialism
- B. The Printing Press and the Notion of the "Singular Genius" in the History of Science
- C. Vesalius, Harvey, and the Anatomical Renaissance
1. Vesalius and the Myth of the Singular Genius
 2. Vesalius and the Influence of Renaissance Humanism
 3. Vesalius and Dissection
 4. William Harvey and the Circulation of the Blood
 5. Malpighi, the Microscope, and Studies of Circulation after Harvey
- D. Medical Reformers during the Scientific Revolution
1. Paracelsus
 2. Nicholas Culpeper

IV. THE AGE OF EXPLORATION TO THE LATE NINETEENTH CENTURY 25%

- A. The Columbian Exchange and Life and Death in the Americas
- B. The Impact of Smallpox on Native Americans and European Settlers
- C. The Plague and Public Health in Europe
- D. Smallpox and the Boston Inoculation Debate, 1721–22
- E. The "Discovery" of Vaccination and Historical Views of Early Vaccinators
- F. Elite Medicine in the Medical Marketplace
1. The Medical Marketplace in Great Britain
 2. The Medical Marketplace in New England
 3. Benjamin Rush and "Heroic Medicine"
 4. Martha Ballard: Midwives and Domestic Medicine in the Medical Marketplace
 5. William Buchan
 6. The Tightening of the Medical Marketplace
- G. Sanitarianism and Public Health
- H. The Rise of Scientific Medicine in Europe: The Birth of the Clinic to the Laboratory Revolution

1. Morgagni and the Rise of Morbid Anatomy
 2. Bichat's Reordering of Pathological Inquiry and Classification
 3. The Rise of the Scientific Laboratory
 4. Virchow, Schwann, and the Use of the Microscope
 - I. Medical Heterodoxies from Mesmerism to Thomsonianism
 1. Mesmer and "Animal Magnetism"
 2. Hahnemann and Homeopathy
 3. Thomson and Herbalism
 - J. The U.S. Civil War and the Transformation of American Medicine
 1. Florence Nightingale and Sanitarian Reforms
 2. Data Collection by the Union Army
 3. Medical Education in the Civil War Era
- V. THE RISE OF MODERN LABORATORY MEDICINE 15%
- A. Late Nineteenth- and Twentieth-Century Medicine in Historical Context
 - B. Germ Theory and the "New" Public Health
 1. Louis Pasteur
 2. Robert Koch
 3. Germ Theory, Sanitarians, and Public Health
 4. The Case of Mary Mallon (Typhoid Mary)
 5. New State Powers in Public Health
 - C. The Reform of Medical Education and the Professionalization of American Medicine
 - D. The Hospital and the Rise of Technology in Medicine
 1. The Development of Anesthesia
 2. The Sphygmomanometer
 3. The Use of X-Rays
 - E. Therapeutic Optimism and the Golden Age of Medicine
 1. Salvarsan
 2. Insulin
 3. Polio
 4. HIV
 - F. Health Insurance and Opposition to "Socialized Medicine" in the U.S.
 1. AMA Opposition to Compulsory Insurance
 2. Private Insurance Options
 3. Medicare and Medicaid
 4. The ACA