

# Evidence Based Decision Making and Informatics Interdisciplinary Curriculum Outline

## Year 1 – PROLOGUE

### **Content Area 1 : Introduction to Evidence Based Decision-Making; History and Philosophy of Medicine and Science; Art of Medicine, Life Long Learning Skills**

**Staff:** EBDM Faculty, Library Staff

#### **Goals:**

- To introduce students to the basic concepts of EBM, demonstrating how EBM, clinical epidemiology and biostatistics, medical informatics and critical review of the literature are all intrinsically linked together.
- Introduce the skills necessary for accessing literature and using electronic databases
- Introduce concept of Life Long Learning, scientific method and real world implications

#### **Best Learning Methods:**

- Problem Based Learning – develop case based exercises requiring integration of basic science with clinical information and appropriate use of literature.
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Website designed to allow students to apply concepts and practice their skills
- Lectures for Introductory or Summative Key Principles only

#### **Best Evaluation Methods:**

- Facilitator evaluation
- Projects
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Basic concepts of content. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to facilitate and evaluate activities and projects.

#### **Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

#### **Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, reward Course directors and faculty for participation

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## Year 1 Fall – PROLOGUE / FOUNDATIONS

### **Content Area 2 (6 hrs): Information Searching; Using the Modern Library, Question-driven searching, Introduction to types of evidence and Vocabulary/Language; Introduction to Health Care Informatics**

**Staff:** EBDM Faculty, Library Staff

#### **Goals:**

- Develop students' skills and abilities to effectively access appropriate resources to obtain up-to-date information on patient care issues (MEDLINE, OVID, etc.)
- Provide students with a foundation in the types of evidence.
- Provide students with basic vocabulary /language of EBM.
- Provide students with a foundation in the use of Health Care Informatics needed to effectively communicate, manage knowledge, and support decision-making using information technology

#### **Best Learning Methods:**

- Problem Based Learning – develop case based exercises requiring integration of basic science with clinical information and appropriate use of literature.
- Team Learning/Journal Club
- Electronic Self-Learning – On line library tutorials; D2L; AHSC Library –combine didactic sessions with active learning component.
- Computer Laboratory – small group
- Small group teaching in library's computer room with hands on searching for answers to clinical questions
- Independent reading/learning/study
- Lectures for Introductory or Summative Key Principles only

#### **Best Evaluation Methods:**

- Facilitator evaluation
- Projects
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty / Staff Development:** Knowledge and familiarity with appropriate electronic resources. Foundation in types of evidence. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to facilitate and evaluate activities and projects.

#### **Time in the Curriculum: 6**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

#### **Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## Year 1 Fall – PROLOGUE / FOUNDATIONS

### **Content Area 3 (10 hrs): Introduction to Critical Appraisal of Evidence & Literature, Hierarchy of evidence, Validity**

**Staff:** EBDM Faculty, Library Staff, Course Faculty

#### **Goals:**

- Provide students with an understanding of key medical-statistical and clinical epidemiologic principles utilized in the medical scientific literature
- Develop students' ability to critically appraise the scientific (or medical) literature
- Develop students' ability to translate research evidence into clinical problems

#### **Best Learning Methods:**

- Problem Based Learning – develop case based exercises requiring integration of basic science with clinical information and appropriate use of literature.
- Team Learning/Journal Club
- Electronic Self-Learning (integrated with course content)
- Computer Laboratory – small group
- Independent reading/learning/study
- Medical Interview
- Lectures for Introductory or Summative Key Principles only

#### **Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- Medical Interview
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

#### **Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

#### **Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward course directors and faculty for participation.

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## Evidence Based Decision Making

### Year 2 – ADVANCED TOPICS / TRANSITION

#### Content Area 1 (18 hrs): Statistics and Clinical Epidemiology for Evidence Based Decision Making

**Staff:** Evidence Based Decision-Making Faculty, College of Public Health Faculty

#### Goals:

- Students will review designs of clinical studies and clinical questions, learning the first step for quality answers, identifying the quality issues of the different study designs,
- Explore the individual patient versus community aspects, samples versus populations
- Key statistical concepts: measurement, validity, bias, hypothesis testing, sensitivity & specificity, likelihood Ratios, risk, odds ratios, confidence Intervals, probability
- Explore data presentations (odds ratio graphs, meta-analysis graphs;
- Introduction to Diagnostic test performance

#### Best Learning Methods:

- Problem Based Learning – develop case based exercises requiring integration of basic science with clinical information and appropriate use of literature.
- Team Learning/Journal Clubs (integrated with course content)
- Electronic Self-Learning
- Computer Laboratory – small group
- Website designed to allow students to apply concepts and practice their skills
- Independent reading/Learning/Study
- Lectures for Introductory or Summative Key Principles only

#### Best Evaluation Methods:

- Facilitator evaluation
- Projects
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Basic concepts of content. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to facilitate and evaluate activities and projects

#### Time in the Curriculum: 18

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

#### Additional Resources:

Electronic Learning Resource Team (educational specialists + web design + content experts)

#### Faculty Rewards Team:

Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## Year 2 – ADVANCED TOPICS / TRANSITION

### Content Area 2 (10 hrs): Clinical Thinking & Decision-Making

**Staff:** Evidence Based Decision-Making Faculty, Library Staff, Course Faculty

**Goals:**

- Demonstrate an understanding of epidemiological principles and how they can strengthen your ability to interpret new and often conflicting data
- Ability to search medical literature for articles relevant to informing clinical decisions
- Ability to evaluate the quality of different sources of information (lectures, medical journals, internet) and understand how to translate the results of these studies into measures which directly address the clinical question under consideration
- Develop an understanding of why patients, physicians, payers, and national agencies may arrive at different conclusions in evaluating a given clinical question and begin to appreciate ways to resolve these conflicting perspectives.
- Continued Health Care Informatics proficiency development.

**Best Learning Methods:**

- Problem Based/Team Learning – develop case based exercises requiring integration of basic science with clinical information and appropriate use of literature
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Simulation laboratory
- Independent Reading/learning/study
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator evaluation
- Mini OSCE's
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty – Staff Development:** Content Knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## Year 2 – ADVANCED TOPICS / TRANSITION

### **Content Area 3 (10 hrs): Lifelong Learning; Introduction to Practice Guidelines, Clinical Decision Rules**

**Staff:** Evidence based decision-making faculty, Library staff, and Course faculty

**Goals:**

- Reinforce importance of Life Long Learning
- Understanding and appropriately use distance learning methods
- Understand concepts and application of Practice Guidelines and Clinical Decision Rules,
- Understand how these principles and skills can be used wisely to assist in solving problems of health and disease in individual patients

**Best Learning Methods:**

- Problem Based Learning
- Team Learning/Journal Club
- Electronic Self-learning
- Computer Laboratory – small group
- Preceptorship assignments
- Simulation laboratory
- Journal Club (integrated w/course content)
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator evaluation
- Projects
- AVOID Multiple choice test
- Portfolio Review (final portfolio @ end of year 4)

**Faculty/Staff Development:** Faculty development course

**Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

**Year 3 –CORE CLINICAL EXPERIENCES**  
**Proficiency and Introduction to Translation (34 hrs)**

**Content Area 1 (18 hrs): Critical Appraisal of Evidence & Literature (Application and Continued Proficiency)**

**Staff:** EBDM Faculty, Library Staff, and Course Faculty

**Goals:**

- Introduce active application of EBDM to student's patient care.
- Continued development of students' ability to critically appraise research findings in the scientific (or medical) literature.
- Continued development of students' ability to translate evidence in the literature to clinical problems.
- Continued Health Care Informatics proficiency development.

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 18**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation



## Year 3 –CORE CLINICAL EXPERIENCES

### **Content Area 2 (10 hrs): Clinical Thinking and Decision-Making (Application and Continued Proficiency)**

**Staff:** EBDM Faculty, Library Staff, and Course Faculty

#### **Goals:**

- Develop students' ability to describe the decision-making processes used in medicine. Introduction to the process of formulating a differential diagnosis.
- How to define pretest probability, principles related to diagnostic testing

#### **Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

#### **Best valuation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

#### **Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

#### **Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## **Year 3 –CORE CLINICAL EXPERIENCES**

### **Content Area 3 (6 hrs): Translating Information to the Bedside**

**Staff:** EBDM Faculty, Library Staff, and Course Faculty

**Goals:**

- Develop student's ability to identify role of Patients' values, ethics, cost-effectiveness, negotiating with other healthcare providers with disparate views.
- Develop students' ability to discuss relevant findings of scientific (medical) literature to patients

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios.
- Team Learning/Journal Club
- Electronic Self-Learning
- Bedside Teaching/Clinical Rounds
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Mini-OSCEs
- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 6**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

**Year 4 – ADVANCED CLINICAL EXPERIENCES  
EBDM and Lifelong Learning (52 hrs)**

**Content Area 1 (10 hrs): EBDM and Lifelong Learning**

**Staff:** EBDM Faculty, Library Staff, and Course Faculty

**Goals:**

- Develop students' ability to identify role of EBDM in Lifelong Learning.
- Understanding and using Practice Guidelines and Clinical Decision Rules, Distance Learning.
- Continued Health Care Informatics proficiency development.

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios.
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 10**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## Year 4 – ADVANCED CLINICAL EXPERIENCES

### Content Area 2 (18 hrs): Critical Appraisal of Evidence & Literature (Application and Continued Proficiency)

**Staff:** EBDM Faculty, Library Staff, and Course Faculty

**Goals:**

- Continued development of students' ability to critically appraise research findings in the scientific (or medical) literature.
- Continued development of students' ability to translate evidence in the literature to clinical problems

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios.
- Team Learning/Journal Club
  
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 18**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation



## Year 4 – ADVANCED CLINICAL EXPERIENCES

### Content Area 3 (18 hrs): Clinical Thinking and Decision-Making (Application and Continued Proficiency)

**Staff:** EBDM Faculty, Library Staff, Course Faculty

**Goals:**

- Develop students' ability to describe the decision-making processes used in medicine. Introduction to the process of formulating a differential diagnosis.
- How to define pretest probability, principles related to diagnostic testing

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios.
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 18**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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## Year 4 – ADVANCED CLINICAL EXPERIENCES

### Content Area 4 (6 hrs): Translating Information to the Bedside

**Staff:** EBDM Faculty, Library Staff, Course Faculty

**Goals:**

- Develop student's ability to identify role of Patients' values, ethics, cost-effectiveness, negotiating with other healthcare providers with disparate views.
- Develop students' ability to discuss relevant findings of scientific (medical) literature to patients

**Best Learning Methods:**

- Problem Based Learning – integration of EBDM with actual clinical scenarios.
- Team Learning/Journal Club
- Electronic Self-Learning
- Computer Laboratory – small group
- Lectures for Introductory or Summative Key Principles only

**Best Evaluation Methods:**

- Facilitator Evaluation
- Projects
- Clinical vignettes
- AVOID Multiple choice test
- Student Evaluations should include item related to EBDM

**Faculty/Staff Development:** Content knowledge. Case and project design for problem based/team learning exercises. How to design activities and interface with electronic learning modes (D2L, websites). How to design clinical vignettes. How to facilitate and evaluate activities and projects. Innovative ways to incorporate concepts into established basic science content.

**Time in the Curriculum: 6**

All other time is non-additional as Course Directors should insert, integrate and reconfigure existing content delivery.

**Additional Resources:**

Electronic Learning Resource Team (educational specialists + web design + content experts)

**Faculty Rewards Team:** Special item on Annual Review related to EBDM, Reward Course directors and faculty for participation

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