Mercer University
School of Medicine
Biomedical Problems (BMP) Program
Student Manual
Academic Year 2016-2017
# TABLE OF CONTENTS

MISSION, VISION AND GOALS, .................................................................................................................. 4

I. KEY CONTACTS, FACULTY, STAFF ................................................................................................................. 5
   A. TUTORS .................................................................................................................................................. 5
   B. PHASE COORDINATORS...................................................................................................................... 6
   C. PROGRAM DIRECTORS .......................................................................................................................... 7
   D. RESOURCE FACULTY ........................................................................................................................... 8

II. COURSE OBJECTIVES .................................................................................................................................... 10
   A. BASIC MEDICAL SCIENCE KNOWLEDGE.......................................................................................... 10
   B. LEARNING SKILLS ............................................................................................................................... 10

III. EVALUATIONS .................................................................................................................................................. 12
   A. TUTORIAL .............................................................................................................................................. 12
   B. STUDENT ORAL CASE ANALYSIS (SOCA) ....................................................................................... 13
   C. MULTI-DISCIPLINE EXAMINATION (MDE) ....................................................................................... 17

IV. EFFECT OF FAILURE TO MEET EVALUATION STANDARDS ........................................................................ 19
   A. STANDARDS FOR THE BMP PROGRAM ............................................................................................. 19
   B. REPETITION OF A YEAR OR A PORTION OF A YEAR ....................................................................... 19

V. REMEDIATION .................................................................................................................................................. 20
   A. INITIAL REMEDIATION ...................................................................................................................... 20
   B. REQUIRED REMEDIATION ............................................................................................................... 21
   C. UNIFORMITY OF ASSESSMENT ......................................................................................................... 22
   D. OUTCOMES .......................................................................................................................................... 22

VI. AUTOPSY PROGRAM ..................................................................................................................................... 22

VII. POLICY ON ATTENDANCE ............................................................................................................................. 23
   A. YEAR ONE ATTENDANCE POLICY: FIRST-YEAR STUDENTS ............................................................ 23
   B. YEAR TWO ATTENDANCE POLICY: SECOND YEAR STUDENTS ....................................................... 23
   C. PROCEDURES ......................................................................................................................................... 23
MISSION, VISION AND GOALS

Mission: To provide Mercer medical students a foundation in the basic medical sciences relevant to the practice of medicine.

Vision: Each student will leave the BMP Program competent in the basic science with knowledge, skills, attitudes and behaviors that will support their clinical development and benefit the health of their patients.

Goals:

1. The program will include a curriculum which provides fundamental knowledge in the basic medical sciences relevant to the practice of medicine.

2. The program curriculum will incorporate analysis of biomedical problems to promote higher cognitive skills by integrating information and concepts from individual disciplines into an overall understanding of medical sciences applicable to patient care.

3. Curricular elements will emphasize the importance of both oral communication skills and independent study skills with articulate and thoughtful analysis, appraisal, and assimilation of the scientific issues, concepts and major mechanisms necessary for understanding the underlying medical sciences applicable to patient care.

4. The curriculum will provide an environment and resources necessary to promote the development of professional attitudes, skills and behaviors.

5. Curricular components will include evaluation requirements to promote evaluation skills that facilitate individual, group and program improvement.

6. The program components will base their learning objectives on the overall competencies of the curriculum.

(Approved CIC 2/21/06)
I. KEY CONTACTS, FACULTY, STAFF

A. FACULTY TUTORS

1. The tutor will be either a basic scientist or clinician.

2. The tutor is to facilitate:
   a. the creation and maintenance of a learning environment in which focused, efficient, scientific and patient-centered discussions can occur, and during which each tutorial group member can participate.
   b. the generation and prioritization of learning issues.
   c. discussion of learning issues at an intellectual depth consistent with the BMP program and the phase of the curriculum.
   d. the general development during group discussions of each group member's Independent Learning Skills, Higher Cognitive Skills, Oral Communication Skills and Evaluation Skills as listed in the BMP Program Goals.
   e. the group's definition and location of adequate learning resources, including faculty members.
   f. group evaluation of its process skills in the areas of:

   Knowledge Learning Skills
   Oral Communication Skills
   Evaluation Skills
   Professional Behavior

   g. the defining of group problems, both cognitive and interpersonal, and the resolution of the problems.

3. The tutor shall evaluate each student group member, give verbal formative assessment in an ongoing manner, and give written formative evaluation at mid-phase and summative evaluation at end of the phase in the following areas:

   Acquiring Knowledge
   Learning Skills
   Oral Communication Skills
   Evaluation Skills
   Professionalism

4. The tutor shall give a student in the group written notice at any point in time when his or her group performance becomes Unsatisfactory. (See Evaluation section)

5. Faculty new to the tutorial process are assigned as a co-tutor to a phase. A co-tutor participates in all group activities under the direction of the regularly assigned group tutor.
B. PHASE COORDINATORS

The Phase Coordinator (PC) shall be a broadly experienced member of the faculty who shall be knowledgeable in many of the content areas of the Phase, and who shall be responsible for the academic excellence of the Phase.

1. Are responsible for overall quality of the phase.
   a. Study Guide (SG)
      The PC will evaluate the appropriateness of all discipline material in the Phase. This evaluation will include the content as well as volume of topics, objectives, resources and references.
      The PC seeks the guidance of any faculty member with a significant knowledge of the Phase, with the active involvement and inclusion of Phase tutors and discipline representatives.
   b. Cases
      The PC recommends and implements improvements in BMP Program cases. These improvements will be based in part on the suggestions of students and tutors and will be made in consultation with discipline faculty.
   c. Examinations
      1) Coordinates the creation of the MDE from submitted materials from the disciplines, and subsequent revisions.
      2) Coordinates the creation of the oral examination (SOCA) with the assistance of the phase clinical tutors and clinicians.
      3) Assists with the administration of the examinations.
   d. Resources
      1) The PC of each phase, in cooperation with the class president or designee, will oversee and manage the scheduling of resource sessions offered to the class, and shall be responsible for their availability, appropriateness, and evaluation by the students. The coordinator is responsible for submitting all BMP Program resource sessions for inclusion on the Web-based calendar.
      2) Problems arising in the resourcing component of a phase should be reported to the PC. The PC will monitor resource materials and textbook problems and opportunities.
      3) The PC will communicate phase information, needs and materials to the library, LRC, and other areas as needed by the phase. This communication may be directly or through the discipline representatives.
      4) The PC will manage the content posted to the phase website (University's Blackboard learning system).

2. The PC is responsible for resolving problems in a tutorial group that arise during the phase which tutors are unable to resolve.
3. The PC reviews tutor and student recommendations for phase improvements and makes appropriate recommendations.
   a. Encourages student and tutor feedback during the phase, and acts upon it as appropriate
   b. Assists in the evaluation of the phase by students and faculty
   c. Prepares an end-of-phase summary report that incorporates phase data, the above evaluations, and analyses
   d. Utilizes these evaluations to improve the phase

4. The PC is a member of the Phase Coordinators Committee, with the following members for the 2016-2017 academic year:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Coordinator</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain &amp; Behavior</td>
<td>Dr. Shillcutt</td>
<td>MAC</td>
</tr>
<tr>
<td>Cardiology</td>
<td>Dr. Prakash</td>
<td>MAC</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>Dr. TBD</td>
<td>MAC</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Dr. Ignatoff</td>
<td>SAV</td>
</tr>
<tr>
<td>Renal</td>
<td>Dr. Carlton</td>
<td>SAV</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>Dr. Yang</td>
<td>SAV</td>
</tr>
</tbody>
</table>

C. PROGRAM DIRECTORS

For the BMP program, the Program Director is Dr. Edward Klatt, and he is located on the Savannah campus. The Assistant Director is Dr. Roy Russ, and he is located on the Macon campus.

1. Are responsible for implementation of the BMP Program
2. Are responsible for assisting the phase coordinators to resolve problems
3. Review all program evaluations.
4. Report to Associate Dean(s) for Academic Affairs
5. Program Director – Dr. Klatt
   a. Assessment of students – Administration and Reporting
   b. Faculty
      1) Scheduling
      2) Evaluation activities
      3) Faculty Development issues associated with the BMP Program
c. Curriculum
   1) Chair, Phase Coordinators Committee
   2) Report to CIC and Administration
   3) Facilitate current BMP Program curriculum
   4) Curricular evaluation and improvement

6. Assistant Director – Dr. Russ
   a. Evaluations of Students
      1) Faculty tutor evaluation of students (mid-phase and final)
      2) Student evaluation of faculty tutors (mid-phase and final)
      3) Student evaluations of the BMP program
         a) Test review
         b) Phase review
   b. Student absences
   c. Communications among students, faculty, and program directors

D. RESOURCE FACULTY

Resource faculty are located on both the Macon and Savannah campus. Students may contact faculty at either campus.

A. Macon Campus
   Off Campus (478) 301 + last 4 digits
   On campus 4 digit extension

   1. Clinical Skills
      Dr. Blanca Lopez ........................................... Sports Medicine [4123]
      Dr. Steve Williams ............ Macon 1st FL, next to Dean Suite [2209]

   2. Department of Pathology
      Dr. Robert Donner (Chair)......................... W94 MUSM [2560]
      Dr. Larry Nichols ..................................... W96 MUSM [2405]
      Dr. Anna Walker ......................... W90 MUSM [4067]

   3. Division of Basic Medical Science
      Anatomy and Embryology
      Dr. Henry Young................................. W104 MSUM [4034]
      Dr. Francis Kirera ............................... E54 MUSM [4043]
      Dr. Janine Chalk .......................... E60 MUSM [4027]
      Histology/Cell Biology
      Dr. Balint Kacsoh................................. W92 MUSM [2225]
      Dr. Rudy Zalups.................................. W84 MUSM [2559]
      Dr. Christy Bridges .......................... E53 MUSM [2086]
      Biochemistry
      Dr. Susan Cline ................................. E59 MUSM [2231]
      Dr. Rick McCann .............................. W98 MUSM [4066]
      Dr. Thomas Selby ......................... E57 MUSM [2558]
      Genetics
      Dr. Ed Perkins (Savannah)............. Hoskins Bldg 2nd FL [8204]
      Immunology

8
Dr. Rob McKallip (Interim Chair) .................. W106 MUSM [2779]
Dr. Peter Uchakin

**Microbiology (bacteriology, mycology, virology)**
Dr. Doris Baker ........................................... W90 MUSM [2088]
Dr. Gretchen Bentz .................................. E55 MUSM [4103]
Dr. Laura Silo-Suh .................................... E51 MUSM [5128]

**Neuroscience**
Dr. Ananda Weerasuriya .................. W86 MUSM [2403]
Dr. Andon Placzek .............................. W91 MUSM [4035]

**Pharmacology**
Dr. Roy Russ ........................................... E46 MUSM [2390]
Dr. Jim Thomas ................................. W85 MUSM [4177]
Dr. Ashley Horner .............................. W100 MUSM [4050]

**Physiology**
Dr. E.S. Prakash ................................. Dean’s Suite MUSM [5507]
Dr. Sandra Leeper-Woodford ....... W102 MUSM [2555]
Dr. Clay Pandorf .............................. W97 MUSM [4060]
Dr. David Gu ....................................... W93 MUSM [4004]

4. **Behavioral Science**
   Dr. Kerry Coburn ................................ 655 First Street [2444]
   Dr. Sam Shillcutt .......................... 655 First Street [2330]

5. **Community Medicine**
   Dr. David Parish ................................. CM [4094]
   Dr. Randolph Devereaux .................. CM [4081]
   Dr. Yudan Wei .................................. CM [4179]
   Dr. Jacob Warren .............................. CM [2884]

6. **Ethics**
   Dr. Richard Elliott .......................... E62 MUSM [478-960-3694]

7. **Family Systems**
   Dr. Bowden Templeton ....................... 655 First Street [4077]
   Dr. Morgan Stinson .......................... 655 First Street [2208]

8. **Clinical Departments** - Various faculty from the departments of Internal Medicine, Family Medicine, Pediatrics, Surgery, Obstetrics and Gynecology, and Psychiatry participate in the PBL curriculum. – Please consult faculty directories and curriculum faculty rosters for contact information.

**Savannah Campus**

**Off Campus:** (912) 721 + last 4 digits
**On Campus:** 4 digit extension only

1. **Clinical Skills**
   Dr. Natalie Hogan .......................... Hoskins Bldg 1st FL [8192]

2. **Department of Biomedical Sciences**
Dr. Robert Visalli (Chair) ........................ Hoskins Bldg 2nd FL [8209]

Anatomy, Gross and Embryology
Dr. Kristjan Thompson .......................... Hoskins Bldg 2nd FL [8207]

Biochemistry
Dr. Himangshu Bose ............................. Hoskins Bldg 2nd FL [8187]
Dr. James Knapp ................................. Hoskins Bldg 2nd FL [8210]

Genetics
Dr. Shi-Wen Jiang ............................... Hoskins Bldg 2nd FL [8188]
Dr. Ed Perkins ...................................... Hoskins Bldg 2nd FL [8204]

Histology
Dr. Jinping Li ...................................... Hoskins Bldg 2nd FL [8189]

Immunology
Dr. Ron Garner ................................. Hoskins Bldg 2nd FL [8206]

Microbiology
Dr. Robert Visalli ............................... Hoskins Bldg 2nd FL [8209]

Neuroscience
Dr. Tina Thompson .............................. Hoskins Bldg 1st FL [8184]

Pathology
Dr. Edward Klatt ................................. Hoskins Bldg 1st FL [8183]

Pharmacology
Dr. Wayne Glasgow ............................. Hoskins Bldg 2nd FL [8201]

Physiology
Dr. Wei-Hsiung Yang ........................... Hoskins Bldg 2nd FL [8203]
Dr. Zhi-Qing Zhao ............................... Hoskins Bldg 2nd FL [8208]

3. Community Medicine
Dr. Eric Shaw ................................. Hoskins Bldg 2nd FL [8205]
Dr. Michael Arrington ........................... Hoskins Bldg 2nd FL [8199]

4. Ethics
Dr. Martin Greenberg .......................... Hoskins Bldg 1st FL [8223]

5. Research and Clinical Departments - Various faculty from the clinical departments as well as community faculty participate in the Patient Based Learning Curriculum. – Please consult faculty directories and phase tutor rosters for contact information.

II. COURSE OBJECTIVES:

The overall objectives of the BMP Program direct each student to acquire, increase, practice, and/or improve the following:

A. BASIC MEDICAL SCIENCE KNOWLEDGE

A fundamental knowledge of the basic medical sciences is relevant to the practice of medicine.
B. LEARNING SKILLS

1. Independent Learning Skills
   a. The ability to identify areas of basic science strengths and weaknesses from the analysis of biomedical problems and to learn the material required for the analysis.
   b. The ability to search for, to choose, and to retrieve information relevant to a biomedical problem from a variety of sources.

2. Group Learning Skills
   The ability to both contribute by oneself and to incorporate unfamiliar, novel information contributed by others during group discussions into an expanding knowledge base.

   Group members may promote active learning through sharing of experiences, abstract conceptualization, experimentation, and reflective observation.

3. Higher Cognitive Skills
   The ability to analyze biomedical problems and to integrate information and concepts from the individual basic science disciplines into an overall understanding of medical science, including the ability to:
   a. Apply scientific information and concepts to biomedical problems in multiple contexts
   b. Integrate information from different disciplines.
   c. Collate information and evaluate its relevance to biomedical problems applicable to patient care.
   d. Evaluate scientific accuracy and applicability of information read and/or presented by others.
   e. Synthesize new information from existing information.
   f. Explain the scientific basis of a medical problem, its various manifestations and potential treatments.
   g. Apply creative problem solving to learning issues.
   h. Discriminate between cause and effect.
   i. Use the hypothetico-deductive and the hierarchical-inductive styles of reasoning to achieve pattern recognition.
   j. Be objective regarding data, open-minded toward new concepts, skeptical when necessary, and willing to suspend making a judgment if there is insufficient evidence.

4. Oral Communication Skills
   The ability to appropriately communicate with others to obtain and
disseminate knowledge, including the ability to:

a. Identify and articulate knowledge thoughtfully and clearly, emphasizing the scientific issues, concepts, and major mechanisms underlying medical problems.
b. Summarize biomedical problems succinctly and adequately.
c. Get others to understand what you know, not just tell them what you know.
d. Work effectively within a group and to communicate with others in group learning tasks.

5. Evaluation Skills

The ability to appropriately evaluate others as well as apply metacognition to self-assess for ongoing adjustments to the learning process, including the ability to:

a. Evaluate others and to provide feedback with constructive criticism.
b. Evaluate the group and its functioning.
c. Realistically assess one's own deficiencies so that appropriate corrective measures can be sought and implemented.

III. EVALUATIONS

A. TUTORIAL

1. The tutor evaluates each student at the midpoint and at the end of the phase. The student behaviors listed below may be considered as minimal in tutor evaluation of students, with the recognition that tutor expectations increase as the student progresses through the BMP Program:

a. Group and Interpersonal Skills: e.g., the student is actively involved in group process by initiating and contributing to discussions; actively collaborates with others in group learning tasks; exhibits a positive attitude toward tutorial process
b. Problem-solving Skills: e.g., the student applies scientific issues, concepts, and mechanisms underlying medical problems; closes cases using SOCA format
c. Information-gathering Skills: e.g., the student incorporates primary reference information into discussion; incorporates outside material into discussion
d. Evaluation Skills: e.g., offers insights of material used during
discussion, generates and critiques various hypotheses relative to concepts discussed in group.

e. Presentation Skills: e.g., summarizes and paraphrases biomedical concepts and information; offers a well-structured discussion and uses appropriate terminology.

f. Professional Behavior: e.g., demonstrates responsibility by punctuality, preparation, and attentiveness, shows respect and integrity when working with others, has a positive attitude with self-awareness to accept feedback, and conducts oneself in an ethical and professional manner.

2. Tutors shall keep individual students informed of deficiencies in group participation as the tutorials progress, and the tutors shall make suggestions for student improvement based upon observation BEFORE the phase ends, giving the student an opportunity to demonstrate improvement. Deficiencies in an individual student’s group participation at the end of a given phase shall be so noted in tutor evaluation of the student. THE TUTOR SHALL GIVE A STUDENT WRITTEN NOTICE AT THE POINT IN TIME WHEN HIS OR HER GROUP PERFORMANCE BECOMES UNSATISFACTORY.

3. The regularly assigned tutor (not co-tutor) will determine at the midpoint and end of the phase an OVERALL performance evaluation of Excellent, Good, Satisfactory, Unsatisfactory or Poor using the form: Tutor Evaluation of Student. The evaluations will be distributed to the student and the student’s academic advisor. For the end-of-phase evaluation, Academic Records will record a numerical grade according to the following scale:

<table>
<thead>
<tr>
<th>Tutorial Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>4</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>3</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>1</td>
</tr>
</tbody>
</table>

4. To be SATISFACTORY in the tutorial component of the BMP evaluations, a student must accumulate at least 18 points during Year I and 18 points during Year II.

5. A tutorial grade of less than 18 points in Year I or in Year II is recorded as UNSATISFACTORY and places the student at risk for dismissal.

B. STUDENT ORAL CASE ANALYSIS (SOCA)
1. **Purpose:** The primary purpose of this examination is to assess the student’s ability to effectively communicate a critical analysis of a Biomedical Problem (case) through the application and integration of basic science knowledge learned and applied during the phase.

   a. A SOCA exam will be conducted at the end of each phase. The format is proscribed. It is an adaptation of the 4 part SOAP [subjective, objective, assessment, plan/prognosis] note format modified to provide an organizational scheme for the oral presentation of a patient paper case. Each SOCA presentation must utilize the following format:

      1) an opening case summary based on the SOAP format
      2) identification of 3-4 key concepts based upon the case that will be developed in the presentation
      3) a scientific case analysis based on the SOAP format that includes discussion of the identified concepts.
      4) a brief concluding summary

   An example of case presentation in SOCA format is provided at the BMP Program Blackboard site.

   The only Phase which will not utilize the SOAP format is Brain and Behavior. Because SOAP notes are not used in psychiatry, students will be expected to use the bio-psycho-social method to analyze the cases in this phase and as the organizational framework for the SOCA. For the Brain and Behavior SOCA the following format must be used:

      1) an opening case summary
      2) identification of 3-4 issues based upon the case that will be developed in the presentation
      3) a scientific case analysis based on the bio-psycho-social model that includes discussion of the identified issues.
      4) a brief concluding summary.

   b. The student presentation shall not be allowed to exceed 20 minutes.

   c. The faculty evaluator shall allow the student to present a critical analysis of the case, and shall refrain from interrupting the student presentation except under circumstances that may inordinately jeopardize chances of satisfactory performance, such as (but not limited to):

      1) significant misinterpretation of information provided;
      2) utilization of incorrect information;
      3) inability of the student to analyze the case critically, due to
lack of essential information;
4) extreme anxiety.

d. Evaluators shall not interrogate students as to factual information.

e. The SOCA evaluator shall have the option of asking specific questions related to the CASE only after the student has completed the presentation. Questions shall be for the purpose of helping a student to satisfy the performance criteria in the event that the student has not already done so, or to improve their performance to a passing level. Thus, questions should be directed strictly at either clarification of points or previous comments, reevaluation of statements or interpretations, or extrapolation or extension of the presented analysis. The exam must not exceed the total allotted 30 minutes.

f. The SOCA will be summative in nature. This examination will be evaluated against a standard developed by the phase tutors which is consistent with the phase goals and the position of the phase within the BMP curriculum. Based upon that standard, a single examiner who is a tutor in the phase will evaluate the student’s performance and assign a grade according to the following scale:

- Excellent.................. 5
- Good......................... 4
- Satisfactory............... 3
- Poor ......................... 2
- Unsatisfactory............ 1

The examiner will inform the student whether he/she passed (3 or better), but, within the parameters of satisfactory or unsatisfactory, the examiner does not have to commit to the final grade until formal submission of the evaluation document. Immediately following the exam, the examiner should provide constructive feedback (positive and negative). A written evaluation will be submitted to Academic Records. Subsequently a copy of the evaluation will be given to the student.

g. Any student may challenge a poor or an unsatisfactory evaluation by contacting one of the BMP Directors. The Phase Coordinator will review a recording of the SOCA, unless the Phase Coordinator was the original examiner, in which case the Director will assign a different tutor/examiner from the phase. The reviewer will evaluate the presentation according to the developed standards. The reviewer can assign any grade (higher, same, or lower), and this will be the final grade. Notice to challenge must be made by 5:00 pm on the Tuesday following the SOCA exam.

h. To be SATISFACTORY in the SOCA component of the BMP evaluations, a student must accumulate at least 18 points during
Year I and at least 18 Points during Year II.

i. If a student has accumulated fewer than 18 points in Year I or Year II, that student shall be given a grade of UNSATISFACTORY in the SOCA for that year. For the purposes of promotion this UNSATISFACTORY will be considered equivalent to a single failed MDE for that year.

j. All students who receive an unsatisfactory evaluation on any individual SOCA presentation will be contacted by the Phase Coordinator and encouraged to review the recording of the exam with a phase tutor of their choice. Any student wishing to improve his/her skill may ask to view the recorded exam with any faculty member.

k. As a student progresses through the BMP Program, the SOCA process will evolve. Students will be expected to advance their skills in case analysis over two years. Expectations for a satisfactory performance will be determined by the tutors in the phase prior to the administration of the exam and will be consistent with the Program’s educational level. Using this model, the first year student who is undertaking the Musculoskeletal SOCA will be expected to be significantly more adept at case analysis, organization, and presentation skills than one just finishing Developmental & Genetic Basis of Medicine (Phase B).

l. Procedurally, the Cardiology SOCA will be similar in format to those of first year. **However, beginning with the Pulmonology phase, the case diagnosis will be withheld from the written SOCA case.** The purpose is two-fold: 1) to allow student to apply specific knowledge from the phase to explain the biomedical basis of the disease state and 2) in a logical fashion analyze the information given and deduce a list of possible explanations for the patient’s condition. The goal is to introduce the student to the skills that will be required during the 3rd and 4th years and beyond. The goal is not to teach differential diagnosis. Instead, it is the thought processes, logic, critical thinking and integration of basic science knowledge learned during the phase that will be emphasized. To achieve this goal, slight changes in SOCA format must be possible in the later phases. PCs and tutors associated with those phases will be given some latitude to utilize a case format which best fits the goals of the phase and the educational level of the students. The clinical tutors and/or clinical co-coordinator would be expected to play an invaluable role in this process.

Similar to the first year, expectations for student performance will increase from Cardiology through Endocrinology phases. This change in expectation is consistent with the use of the SOCA as an evolving educational tool over the two years of the curriculum.
2. SOCA Presentation Format
   a. The SOCA is a formal presentation and students are expected to act and dress professionally. Students are required to wear their white coats.
   b. A patient case similar to those presented during the phase is reviewed by the student for 45 minutes prior to the presentation. During this time, students are encouraged to develop notes to outline and guide their presentation. These notes may be taken into the exam room during the presentation, but cannot be taken out of the exam room following the presentation.
   c. The student has up to 20 minutes to present their analysis and discussion of the case.
   d. In Cellular Basis of Medicine (Phase A), the oral examiners will be tutors in the phase. The tutors will examine the members of their respective tutorial groups. In all other phases, tutors will NOT examine members of their tutorial group.

3. SOCA Presentation Dates
   a. Evaluations will take place according to the BMP Program Calendar.
   b. Evaluations will generally begin at approximately 7:30 A.M.
   c. A schedule of evaluation times for each student will be posted on Tuesday prior to the evaluations.
   d. Students will be e-mailed the written evaluation within 1 week of the completion of the exam.
   e. Students who are unsatisfactory on an evaluation will be e-mailed the written evaluation by 10:00 am on the Tuesday after the evaluation.

C. MULTI-DISCIPLINE EXAMINATION (MDE)

1. Format
   a. This is a summative and comprehensive written examination given at the end of each phase. There may be two sections to the examination, one based on written material from phase disciplines, and one based on practical application of material (projected images, electronic images, microscopic slides, radiologic images, cadavers, specimens, models, etc.) USMLE style single-best-answer multiple choice
formatted examination questions will be used with the following exceptions:

i. Practical exam components from laboratory sessions may use short answer/fill-in-the blank questions.

ii. Occasional questions which do not meet USMLE format standards can be approved by the PC and the Program Director, not to exceed 10% of the total question allotment for any one discipline.

iii. A discipline may include one essay style question up to 150 words.

iv. Questions that do not meet these requirements will be rewritten or removed from the exam.

b. The multiple-choice questions will count one point each.

c. The fill-in-the-blank questions will count one point each.

d. A small percentage of questions may be multidisciplinary. In these cases, the question will count as one point on the MDE. However, the question will count as one point for each discipline contributing to the question.

e. Each essay question will have a value of 5 points.

f. Answer sheets or keys will be identified as directed by Academic Records.

g. There will be from 170 to 250 points on the written examination, including the practical component.

h. Questions are based on learning objectives in the Study Guide and are answerable from the primary reading cited therein. (Material exclusively contained within the Secondary References is not testable.)

i. A formal MDE test review session will be conducted following each MDE. Challenges to MDE questions must be made in writing during official test review. Faculty MUST respond to all challenges in writing and responses must be turned into Academic Records by appointed times. Challenges and responses must be accessed within Academic Records. Academic Records must notify students that challenges are available for review once all responses have been submitted. Challenge responses must not be distributed to students or photocopied, but must be available for review by students in Academic Records. After challenges are final, students may request reconsideration of a denied challenge. Students requesting consideration of a denied challenge must directly contact the Question
Writer within one working day of the receipt of the denied challenge.

j. All students will receive credit for any deleted question (1 point).

2. Time

a. Time for the examination exclusive of practical or projected visual components is approximately 1.2 minutes for each question (e.g. 240 minutes for a 200-question exam) and 1.5 minutes for each question with an accompanying image. Students will receive 2 minutes per point for essay questions. Additional time will be added for moving between testing locations and short breaks.

b. Preliminary results will usually be released by 5:00 pm on the day of the exam. Final grades will not be released until after test review.

3. Computerized MDE Delivery

a. It is the student’s responsibility to have a laptop computer that meets minimum standards of performance for computerized exam delivery.

b. It is the student’s responsibility to download, install, and keep updated the examination software, accessed via the MUSM custom home page at http://www.examsoft.com/mercemed

c. It is the student’s responsibility to practice using the software to be facile with its use during the MDE.

d. It is the student’s responsibility to download the posted MDE prior to the start of the exam. Students may not start the exam until told to do so when given the exam password by the exam proctor.

IV. EFFECT OF FAILURE TO MEET EVALUATION STANDARDS

A. STANDARDS FOR THE BMP PROGRAM

Please see the MUSM Student Handbook for Academic Performance Standards in Years I and II. The portions that are applicable to the BMP Program will serve as the Standards for the BMP Program.

B. REPETITION OF A YEAR OR A PORTION OF A YEAR

1. When a student repeats a total year, the grades awarded during the repeated year shall replace the grades awarded during the unsuccessful
2. When a student repeats a portion of a year, the grades awarded during the repeated phases shall replace the grades awarded during the unsuccessful phases. Grades awarded during the non-repeated portion of the year shall stand.

V. REMEDIATION

Remediation constitutes an integral component of the BMP Program and is intended to help students overcome academic difficulties. Remediation consists of diagnosis, instruction and evaluation.

Regardless of the level of remediation, the process will include the following:

Discipline faculty responsible for the remediation will schedule a meeting with the student as soon as year-end discipline grades have been finalized. For student initiated remediation, the student will schedule the meeting. The purpose of this meeting is to determine an approach for study and learning. At this meeting the following will occur:

1. A review of the student’s performance in the discipline including an assessment of areas of weakness.

2. A recommendation by the faculty member of appropriate resources the student should use in his/her remediation and in preparation for the re-assessment.

3. The student, in consultation with the Discipline faculty will prepare a study plan. This plan must include scheduled meeting(s) between the student and the Discipline faculty to discuss remediation topics.

4. The Discipline faculty will prepare a remediation contract which will include a summary of the study plan, the type of assessment (either an oral exam, an MDE like exam, or a shelf test, as below) and the date of the assessment. In addition, it will provide detailed information on a second remediation where relevant.

A. REMEDIATION AT THE END OF YEAR I

1. A student with an overall MDE average between 60% and 65% at the end of Year I must remediate sufficient disciplines to bring his/her overall MDE average to 65% before she or he can enter Year II. Remediation will be assessed by an in-house MDE examination with a format consistent with current BMP guidelines and at a level of difficulty consistent with that of the initial test(s). The greater of the remediation exam score or discipline
average will be recorded to a maximum of 65%.

2. After the completion of Year I, a student may choose to remediate any discipline in which his/her average is less than 65%. Remediation will be assessed by an in-house MDE examination with a format consistent with current BMP guidelines and at a level of difficulty consistent with that of the initial test(s). The greater of the remediation exam score or discipline average will be recorded to a maximum of 65%.

B. REMEDIATION AT THE END OF YEAR II

A student with an average below 65% in any discipline at the end of Year II must successfully remediate that discipline before advancing to Year III.

1. Discipline faculty responsible for the remediation will schedule a meeting with the student as soon as year-end discipline grades have been finalized. The purpose of this meeting is to determine an approach for study and learning. At this meeting the following will occur:

   a. A review of the student’s performance in the discipline including an assessment of areas (Topics) of weakness.

   b. A recommendation by the faculty member of appropriate resources the student should use in his/her remediation and in preparation for the re-assessment.

   c. The student, in consultation with the Discipline faculty will prepare a study plan. This plan must include scheduled meeting(s) between the student and the Discipline faculty to discuss remediation topics.

   d. The Discipline faculty will prepare a remediation contract which will include a summary of the study plan, the type of assessment (either an oral exam or a shelf test, as below) and the date of the assessment. In addition, it will provide detailed information on a second remediation attempt should that be necessary. The discipline will provide contact information for approved external courses. Scheduling of the assessment may not occur during the Community Medicine visit. Students who cancel the examination may be required to pay the testing fee. A signed copy of this contract will be forwarded to the BMP Directors and academic records prior to the start of remediation activities.

2. Remediation will be assessed in the following manner. If the student’s score in the discipline is less than 63% the student will take an NBME discipline specific shelf exam (disciplines that do not have an NBME discipline specific shelf test will develop an alternative to be approved by the
academic affairs deans.) A student must score at or above the 25th percentile to pass. If the student’s final discipline score is less than 65% but not less than 63% the student may either take an NBME shelf test or an oral examination, at the discretion of discipline faculty.

3. Academic Records will notify the student, Discipline faculty and the BMP Directors of the outcome of a shelf examination. The Discipline faculty is responsible for notifying the student, Academic Records, and the BMP Directors of the outcome of assessments other than a shelf exam. A student who fails this initial attempt at remediation can choose either to retake the shelf exam, retake the oral exam, or take a formal remediation course at another institution (with passing of the course considered to be satisfactory completion of remediation). In any case, an updated contract must be created by the discipline, which includes the type of remediation and the date of the remediation exam or course dates. If chosen as an option, it is the student’s responsibility to schedule an approved course to meet the requirements of the contract.

4. The chair of the SAPC will be informed of any student who fails the second remediation exam. Students who fail a second remediation will appear before the SAPC, which will determine if the student should repeat the year or engage in further remediation.

VI. AUTOPSY PROGRAM

A. Each student shall participate in a minimum of one autopsy during the second year.

1. Autopsies will be scheduled by the Department of Pathology.

2. Students may not miss other scheduled academic programs in order to attend autopsies with the following exception:

   a. A student may absent himself/herself from a BMP tutorial group in order to attend an autopsy as long as no more than one student from any one group must leave to attend the autopsy.

B. A satisfactory write-up, as determined by the pathologist in charge, will be required and will be a part of the overall BMP evaluation.
VII. POLICY ON ATTENDANCE

Group tutorial attendance is a vital component of the tutorial process and is mandatory. However, an occasional absence may be unavoidable. All absences must be reported to Academic Records. **Students who exceed the allowable number of unexcused absences will receive a failing tutorial grade for the phase in which the policy is exceeded.** Abuse of the absence policy will be reported to the Associate Dean for Student Affairs as a possible professionalism violation.

A. ATTENDANCE POLICY:

1. Students are allowed one unexcused absence during each of the following four time periods that encompass:
   d. Gastrointestinal, Renal, and Endocrinology Phases.

2. Students are not allowed to carry over unused unexcused absences to the next set of phases. Therefore, students would be allowed a maximum of two unexcused absences for an entire academic year.

3. **No student will be permitted more than one unexcused absence during any individual phase.**

B. PROCEDURES

1. Prior to known absence
   a. Notification and consultation with the Director (Dr. Klatt 912-350-1728 for Savannah Campus), or Assistant BMP Director (Dr. Russ 478-301-2390 for Macon Campus) is required. Such notification may be done by email, telephone, or in person.
   b. Notification of tutor and group is strongly recommended.

2. Unexpected absence (e.g. illness)
   a. Academic Records (Macon: 301-4109; Savannah: 350-1716) should be contacted to give notice of absence.
   b. Students will automatically receive a notification by email that they have 1 week to provide an excuse by meeting in person with one of the BMP Directors. Failure to respond will result in an automatic unexcused absence. Repeated requests for unexcused absences related to medical issues may result in a requirement for a doctor’s excuse.
3. Students are responsible for all missed academic work. It is the responsibility of the student to contact the tutor and group for issues, assignments, and other information.

4. Decisions on excusing absences are made by the Assistant BMP Director (Macon campus) and the BMP Director (Savannah campus), and each will be consulted as necessary. The Associate Dean for Academic Affairs will serve as a consultant to the Directors. Appeals of decisions should be made in writing and will be forwarded to the Associate Dean for Academic Affairs.

5. Students should be aware of the MUSM Medical leave policy in the MUSM Student Handbook.

6. **Absences from examinations are to be avoided.** Students are expected to notify the BMP Directors as soon as a problem is recognized and prior to the exam.

7. Failure to appear for a SOCA examination will be handled as a Professionalism issue.

8. **Illness on the day of the exam will require documentation and verification from a physician.**

### VIII. CURRICULUM

#### A. ORGANIZATION

1. Phases: The BMP program is divided into 12 phases ranging from 5-7 weeks.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Length</th>
<th>Coordinator</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA - Cellular Basis of Medicine</td>
<td>6 Weeks</td>
<td>Dr. McCann</td>
<td>MAC PB</td>
</tr>
<tr>
<td>– Dev. &amp; Genetic Basis of Med</td>
<td>6 Weeks</td>
<td>Dr. Thomas</td>
<td>MAC</td>
</tr>
<tr>
<td>HD - Host Defense</td>
<td>6 Weeks</td>
<td>Dr. Garner</td>
<td>SAV</td>
</tr>
<tr>
<td>HM - Hematology</td>
<td>6 Weeks</td>
<td>Dr. Walker</td>
<td>MAC</td>
</tr>
<tr>
<td>NE - Neurology</td>
<td>7 Weeks</td>
<td>Dr. Klatt</td>
<td>SAV</td>
</tr>
<tr>
<td>MS - Musculoskeletal</td>
<td>6 Weeks</td>
<td>Dr. K Thompson</td>
<td>SAV</td>
</tr>
<tr>
<td>BB - Brain &amp; Behavior</td>
<td>5 Weeks</td>
<td>Dr. Shillcutt</td>
<td>MAC</td>
</tr>
<tr>
<td>CD - Cardiology</td>
<td>6 Weeks</td>
<td>Dr. Prakash</td>
<td>MAC</td>
</tr>
<tr>
<td>PL - Pulmonology</td>
<td>6 Weeks</td>
<td>Dr. Russ</td>
<td>MAC</td>
</tr>
<tr>
<td>GI - Gastrointestinal</td>
<td>6 Weeks</td>
<td>Dr. Ignatoff</td>
<td>SAV</td>
</tr>
<tr>
<td>RN - Renal</td>
<td>5 Weeks</td>
<td>Dr. Carlton</td>
<td>SAV</td>
</tr>
<tr>
<td>EN - Endocrinology</td>
<td>6 Weeks</td>
<td>Dr. Yang</td>
<td>SAV</td>
</tr>
</tbody>
</table>
2. Disciplines: Much of the content in the phases is coordinated by disciplines. Scores are determined for each discipline. These discipline scores are determinants of remediation activities and factor in promotion standards.

The disciplines (and associated sub-disciplines) and codes used in study guides are:

- Anatomy / Embryology - 1
- Behavioral Science - 3
- Biochemistry - 4
- Genetics - 6
- Histology and Cell Biology - 7
- Immunology - 8
- Microbiology - 9
- Neuroscience - 13
- Pathology - 14
- Pharmacology - 15
- Physiology - 16

B. TUTORIALS (Discussion Groups)

1. Constituents
   a. There will be 6-9 students in each group.
   b. Students will be assigned randomly. Exceptions require permission of the BMP Directors.
   c. Students will be reassigned to a new tutorial group for each phase.

2. Meetings
   a. Groups meet three times each week, regularly scheduled on Monday, Wednesday and Friday, in designated tutorial rooms.
   b. Groups must start by 9:00 A.M.
   c. Group meetings last for approximately three hours with a short break.
   e. Groups may not cancel sessions or shorten the meeting time.
   f. The meeting day and time may only be altered to accommodate another regularly scheduled curricular activity.

3. Group Process – Students
   a. Develop learning issues and objectives from written biomedical cases.
   b. Discuss information obtained by independent study that pertains to issues and objectives and participate in group learning activities.
   c. Refine learning objectives and discuss new information.
   d. Wrap the case; summarize the basic science knowledge necessary to sufficiently analyze the clinical case.
e. Evaluate their group’s process and progress. Resolve group problems.
f. Professionalism is expected in all group activities.
g. See a detailed description of Group Process in Appendix A.

4. Evaluations
   a. Formal evaluations are completed in writing at the end of each Phase with the goal of providing feedback to the student, tutor, or phase/program about areas of strengths and weaknesses.
   b. Students evaluate: Tutors, and Phase/Program
   c. Tutors evaluate: Students and Phase/Program.
   d. Formal Phase de-briefing sessions are held at the end of each phase. Students are randomly assigned to one session/year. These assignments are made at the start of the academic year. Attendance is required. These sessions are conducted by the Asst. BMP director and include only the Phase Coordinator and the BMP director or designee.

C. STUDY GUIDE

1. Purpose: To assist the student in meeting the learning goals of the BMP curriculum by:
   a. identifying the discipline specific learning objectives for each phase
   b. clarifying the depth of understanding expected for each discipline’s objectives
   c. specifying source material for the multi-disciplinary examination.

2. Format
   a. The Study Guides contain learning objectives for each discipline represented in the phase and are arranged by discipline.
   b. Primary references and page numbers are given for each topic area, and at the discipline’s discretion with each learning objective.
   c. Representative images, cadavers, prosected or model specimens, radiologic imaging studies, and other visuals/multimedia may be given as primary references.
   d. Secondary references may be included to provide an alternative view of the material or for enrichment. Information provided exclusively in secondary references is not testable on the MDE.

D. RESOURCE SESSIONS

1. Resource sessions at MUSM are voluntary learning activities which can either be student or faculty generated. The essence of independent learning necessitates student-generated faculty resource sessions and the practicality of efficient faculty guidance requires strategically administered faculty-generated resource sessions. In both cases the following expectations are acknowledged as necessary adjuncts to the BMP.
a. The resource faculty member(s) for the phase material in question is (are) designated in the study guide, and this assignment should be respected by the students. Substitution of different resource person(s) is at the discretion of the designated study guide resource person(s).

b. The learning activity in each resource can be instructive, explanatory or informative, but should involve only assigned study guide reading or case material. Material not found in the assigned study guide reading or cases is inappropriate for resources; however its use in a very limited capacity is acceptable if the material is defined to the students by the resource person as nonessential for evaluation.

c. Resource sessions may not be held during normal tutorial time. A group may not leave the tutorial room during scheduled sessions, other than the scheduled break. Anyone not assigned to the group may not participate in the group process.

d. The coordinator of each phase in cooperation with the class president or designee will oversee and manage the scheduling of resource sessions offered to the class, and shall be responsible for their availability, appropriateness, and evaluation by the students. No discipline is allowed to schedule multiple resource sessions in a given phase UNTIL all other desired sessions have been scheduled. The number of resource sessions/phase should be kept to a minimum (ideally no more than 10) to allow sufficient time for independent study. A calendar of available first and second year resource dates and times will be distributed at the start of each year.

e. In order to preserve inventive and innovative educational techniques, the nature of the resource, whether didactic, interactive, or team based, is left to the discretion of the resource person(s). Students are encouraged to make use of learning opportunities outside of the classroom, including electronic chat room, office hours, and informal small group interactions.

f. The Phase Coordinator is responsible for insuring that all resource sessions are entered into the web based program calendar.

g. Problems arising in the resourcing component of a phase should be reported to the phase coordinator. The effectiveness of class resourcing in each phase will be reviewed. The venue for this review will be the final phase review, which will include a written report of scheduled class resources. This resource review will reflect the viewpoint of both the phase coordinator and the students, including perceived problems and modifications.

h. Resource sessions will be recorded when possible. Recordings of sessions are uploaded to a server and links to these resources will be available on Blackboard. Recordings from previous years will not be available to students except under special circumstances. Discipline faculty wishing to release old recordings should provide the PC and/or Program Directors a justification for making an exception.
Students are encouraged to participate actively in live classroom resource sessions. Recordings are subject to fair use copyright guidelines.

2. Faculty
   a. The disciplines have designated faculty to handle resources in certain areas of their discipline
   b. Each phase study guide will identify the appropriate resource faculty for that phase.

3. Library
   a. Primary and some secondary Study Guide references are placed on reserve per Library and University policies.
   b. Library personnel will aid in searches for other material.

4. Learning Resource Center Macon (LRC) and Library-Savannah
   a. Some learning aids listed in the Study Guide are available in the LRC or Library. LRC/library personnel or the Phase Coordinator will help locate this material.
   b. Models, radiographs, preserved tissue specimens, histology and histopathology slides, computer-assisted instruction programs, interactive video programs and some audio-visual programs are also housed in the LRC/library.
   c. See Learning Resources Guide for complete listing (available in LRC/library).

5. Gross Anatomy Dissection/Prosection Program
   a. Opportunities for cadaver dissection and review of prosected specimens, in addition to mandatory dissections, are available to groups of students. Formally scheduled anatomy laboratory sessions in the Musculoskeletal Phase require mandatory attendance.
   b. Exercises will be correlated as much as possible with the BMP phases.
   c. Policies for the Anatomy Lab
      1) **Authorized Use.** Only students, faculty and other authorized MUSM personnel are allowed in the gross anatomy lab. Under no circumstances may a student bring an unauthorized visitor into the lab.
      2) **Anatomy Lab Access.** Access to the gross anatomy lab may be restricted at certain times. However, for the most part students will have access to the Anatomy Lab 24 hours a day, seven days a week. Students may be required to access the Anatomy Lab with their University Bearcard (Macon) or their Memorial ID badge (Savannah). Such access is recorded in the respective access databases. After
hours, students are encouraged to use the Lab only in the presence of another student; for security and safety. Working alone in the Lab, particularly at night, is strongly discouraged.

3) **Anatomy Lab Attire.** In keeping with the General Laboratory Safety Requirements of Mercer University, open-toed or perforated shoes are not allowed in the anatomy lab. In addition, although protective, disposable gowns are provided by MUSM, it is recommended that students wear clothing that can be damaged without concern.

4) **Anatomy Lab Accidents.** In the case of an injury in the anatomy lab, students are required to notify a faculty member immediately. If such an injury occurs in the anatomy lab after hours, students should seek appropriate medical care and must contact Mercer Police to file an accident report. The student should subsequently report the incident to either Dr. Henry Young (Macon) or Dr. Krisjian Thompson (Savannah) in Anatomy.

5) **Pregnancy and Access to the Anatomy Lab.** Medical students who are pregnant or who are preparing for pregnancy are advised to consult with their primary care provider before beginning or continuing the sequence of anatomy laboratory exercises of the BMP Program. If a student expects to be pregnant during lab rotations, she is to inform the Anatomy lab director (either Dr. Henry Young (Macon) or Dr. Krisjian Thompson (Savannah). At that time, the student will be referred to Mr. Alan Baca, University Director of Environmental Health and Safety, who will inform her of the potential risks of exposure to formaldehyde and phenol as used in the Anatomy Lab. The student will also be instructed on potential filter devices that can be used to remove these chemicals from the air and that can be fitted to the student. A filtration device and its correct fitting may be provided at the School’s expense. However, the student must provide written recommendation from her physician that (a) the wearing of a specific filtration unit is recommended for her/his patient and that (b) the student is physically fit to respire through that filtration unit.
IX. PROGRAM EVALUATION

A. CONTINUAL EVALUATION – Students and faculty are encouraged to give feedback whenever possible. This may be done either informally or formally, but always in a professional manner.

B. EVALUATIONS BY STUDENTS

1. Web based, on-line evaluation- Students are required to complete evaluations following each phase. These evaluations include an evaluation of the tutor, SOCA exam/examiner and the Phase. Final grades will not be released to the students unless the evaluations have been completed.

2. Phase review – A cohort of students meet with the phase coordinator and BMP Directors following each phase. Students are assigned to a single review session per year. A structured discussion on the components of the phase is held. Attendance at these sessions is mandatory and is subject to the same attendance policy as outlined for BMP group attendance (page 24).

3. A summary of the on-line phase evaluation and the phase review discussion is made available to the entire student body and faculty in the office of the BMP Program Directors (Dr. Klatt, Savannah, and Dr. Russ, Macon)
APPENDIX A: GROUP PROCESS

These are the components of group process in the BMP Program.

1. READING THE BMP (Biomedical Medical Problem) or case
   Definition of a "BMP" - A BMP is a written medical narrative of a patient. Most clinical BMPs include:
   - Chief Complaint or Initial Finding
   - Background
   - Family Medical History
   - Personal Medical History
   - Patient's Current Problem(s)
   - History of Present Illness
   - Physical Findings
   - Laboratory Data
   - Diagnosis
   - Actions taken to Correct the Problem
   - Results of the Actions Taken
   - Prognosis

   When a BMP is read for the first time, it should be discussed as thoroughly as the students are able at their stage in the curriculum and phase.

   It is not considered important when or how much discussion takes place before beginning the process of generating issues. However, the above-mentioned "thorough discussion" should occur before issues are finalized and prioritized.

2. GENERATION OF LEARNING ISSUES

   Definition of an "Issue" - An issue is a question or problem raised about a specific aspect of a BMP. It focuses on a concept, not a single fact.

   Purpose of Generating Issues
   To identify and verbalize weaknesses or gaps in the students' basic medical science knowledge necessary to understand and discuss the BMP at the molecular through the community levels.

   Purposes of Issues
   a. To guide appropriate self-directed study by the students in seeking relevant answers or solutions.
   b. To guide focused, productive group discussions of the basic science information and concepts relevant to the BMP under consideration.
   c. While it is important for the group to raise all pertinent issues, it is understood that not all issues which satisfy these purposes will be a part of the list of issues finalized and prioritized by the group.
Reasons for deleting issues include:
1) There is a more appropriate BMP in the phase or a more appropriate phase for the issue.
2) The issue has already been covered in a previous phase and the group agrees that it is unnecessary to revisit the issue. It is important to note here that in wrapping up a BMP this material should be applied to the BMP at some reasonable level.
3) A group member adequately addresses the issue for the group during Issue Generation. The issue is modified to a better or more complete issue and in the process loses its identity.
4) The group no longer considers the issue to be substantive.
5) The aggregate of issues raised about a BMP should lead to a group discussion at the level of analysis, synthesis and integration. The result of this discussion will be a clear, sound, scientific understanding of the patient's history, diagnosis, treatment and outcome.

d. Nature of an Issue
1) An issue does not necessarily have to be in the form of a question. It should have sufficient clarity and specificity so that the group understands the task for both independent study and the discussion at the subsequent meeting.
2) How the questions or problems are stated can have a tremendous impact on how the discussion proceeds when the group assembles to tackle the issues.
3) In general, questions or problems which engender short answers (yes/no or one/two word) are to be minimized. They do not usually lend themselves to in-depth understanding; e.g., "Where is the thyroid gland?"
4) Short answers are not to be avoided completely because they can be important; i.e., the group needs to know a definition or some other piece of information in order to determine an appropriate direction or broader learning issue.
5) An issue should be broader than can be addressed in a very short answer, but not so broad so as to lose its relevance to the BMP; e.g., "What is the anatomy of the thorax?" Nor should they be so broad as to be ill defined for the tasks of studying and discussing; e.g., "Hyperthyroidism."
6) Lists of items, such as learning objectives or pages of reading, are not learning issues. A learning issue may direct students to specific objectives or resources.
e. Combining/Refining Issues
Not all of the issues as originally generated will satisfy the purpose of issues. One of the group tasks is that of dropping, clarifying, refining, splitting and/or combining issues. This process serves several useful functions:
1) It improves the efficiency of information search and retrieval, study and discussion.
2) It often requires consideration of the patient.
3) It causes further analysis of the information in the BMP or information furnished by group members.
4) It further clarifies the issue(s) so that the group is more nearly of one mind concerning the focus of the discussion planned for the next meeting.

f. Prioritization of Issues
The final task in issue generation is to arrive at a consensus concerning which issues will be discussed and in what order they will be discussed at the ensuing meeting(s). Benefits of this process are:
1) Students are encouraged to think about which issues should logically precede or follow other issues.
2) It is the basic process involved in organizing material for presentation.
3) If they have underestimated the amount of material involved, it also assures that the whole group will do first-things-first (be prepared on the first issues).
4) It should be recognized that more complete knowledge gained by study might legitimately suggest altering the priorities at the beginning of the next meeting.

g. Tutor’s Role in Issue Generation
To facilitate the generation and prioritization of issues which are necessary and sufficient to guide the group to an adequate understanding of the BMP and the medical science related to the BMP.

3. DISCUSSION OF LEARNING ISSUES

a. Purposes of Discussion
1) To bring each group member to an adequate understanding of the basic science information and concepts involved in answering or addressing the issues. To accomplish this through the exchange of information derived from the group’s collective knowledge and deliberation.
2) To identify weaknesses in knowledge or understanding which require new or modified issues.
3) To bring each member to an understanding of the scientific basis of the medical problem, its manifestations and treatment through the groups' discussion of all the issues.
b. Nature of the Discussion

1) Throughout its course, the discussion will involve all group members. For individual group members, this will cycle between active and passive involvement.

2) Discussion by group members will exhibit Higher Cognitive Skills and Oral Communication Skills elucidated in the BMP Goals. It will be at a scientific level commensurate with contemporary medical education, the phase of the curriculum and the progress within the Phase.

3) The discussion should be focused, productive, and efficient, while adhering to the plan, which was determined by the group.

4) Reading from written material as a means of presenting scientific information is not in keeping with the intent of the BMP Program. Appropriate use of written material in discussions would be to refer occasionally to such material as one would when giving a speech. Reading verbatim from texts or notes is appropriate if done to clarify a point of confusion or disagreement.

4. BMP (Case) Closure

a. Purpose: To integrate the discussions of the various issues into an explanation of the scientific basis of the BMP.

b. Nature of the Closure

1) In the BMP closure, the group will demonstrate an understanding of the basic science of the BMP as an integrated whole rather than as a series of parts (e.g., epidemiology, physical findings, treatment, prognosis, etc.) and will reach appropriate conclusions.

The BMP closure will take the form of a summary of the information and concepts from each issue, as well as pertinent relationships among issues. The information presented at this time will not be at the same level as during the issue discussion but will be alluded to specifically; e.g., "this is where we detailed the metabolic pathway"; or, "This is where we went over the histology slides of the …