ENTRY-LEVEL MASTER'S ATHLETIC TRAINING EDUCATION PROGRAM

ELM-ATEP

By

Kendall R. Williams

A Curriculum Project submitted to

Sonoma State University

in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

In

Education

Concentration:

Curriculum, Teaching, and Learning

with emphasis in

Kinesiology

Dr. John Kornfeld

Dr. Steven Winter

Julie Miller

Date 2/9/12
Copyright 2011

By

Kendall R. Williams
AUTHORIZATION FOR REPRODUCTION
OF MASTER’S THESIS/PROJECT

I grant permission for the print or digital reproduction of this curriculum project in its entirety, without further authorization from me, on the condition that the person or agency requesting reproduction absorb the cost and provide proper acknowledgment of authorship.

2/9/12
Date

Signature

Street Address

City, State, Zip
Entry-Level Master's Athletic Training Education Program

ABSTRACT

In an age where modern technology and medical advances are improving quality of life, extending life expectancies, and improving the quality of health care around the world, the medical professional has become specialized. A new addition to the modern healthcare team is the Certified Athletic Trainer (ATC). The curriculum designed for athletic training education is focused on the undergraduate degree; however, as the profession continues to grow, and the need for athletic trainers increases, there is a growing need for alternative routes to athletic training education and certification. The purpose of this project is to construct an Entry-Level Master's Athletic Training Education Program (ELM-ATEP), a suggested alternative route to an undergraduate athletic training education and certification. This specific curriculum is designed for those students who have already obtained a bachelors degree and are seeking athletic training certification, but do not desire a second bachelor's degree. This project is a curriculum constructed specifically for Sonoma State University, with the intention that this curriculum design may serve as a guide for other institutions with similar demographics, who may be seeking implementation of ELM-ATEP. The completed curriculum is grounded in educational theory and the standards created by the national accrediting agency Commission on Accreditation for Athletic Training Education, CAATE.

This curriculum project was created out of need for an athletic training program at Sonoma State University (SSU), and out of need for alternative routes to athletic training education and certification. There is a great need for improved athletic training services; and with community support for such a cause this curriculum could be a reality. My commitment to promoting athletic training is demonstrated through this project, as SSU could be an ideal setting for this curriculum.

This project begins with the definition and history of the athletic training profession: how the profession has changed and how the educational standards have changed on a national level. I then explore the curricular foundations for these changes, and for the standards that have been created for the educational model for this profession. I then provide a sample of the curriculum with the student notes, and power point presentations. I create a platform for why and how I created the curriculum, again using educational theory to justify the choices that I made in creating it. Lastly I reflect on the process and speculate on the future of this profession and the principles upon which young professionals learn the skills that they need to be successful.

Chair:  
Date: 2/09/12

Signature

MA Program in Education  
Emphasis on Curriculum, Teaching, and Learning  
Sonoma State University
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. History and Definition of the Athletic Training Profession</td>
<td>1</td>
</tr>
<tr>
<td>II. Curriculum Theory and Foundation</td>
<td>8</td>
</tr>
<tr>
<td>Standardization</td>
<td>8</td>
</tr>
<tr>
<td>Importance of General Goals and Objectives in Curriculum Development</td>
<td>13</td>
</tr>
<tr>
<td>Categories of Educational Experiences and Teaching Methods</td>
<td>22</td>
</tr>
<tr>
<td>Acquisition of Factual Knowledge</td>
<td>23</td>
</tr>
<tr>
<td>Critical Skill Development</td>
<td>23</td>
</tr>
<tr>
<td>The Deepening of Understanding</td>
<td>24</td>
</tr>
<tr>
<td>Theories of Multiple Intelligences</td>
<td>25</td>
</tr>
<tr>
<td>Mastery Learning</td>
<td>27</td>
</tr>
<tr>
<td>Supervised Independent Practice</td>
<td>30</td>
</tr>
<tr>
<td>Vocational Guidance and Selection</td>
<td>31</td>
</tr>
<tr>
<td>Assessment</td>
<td>32</td>
</tr>
<tr>
<td>E-Learning</td>
<td>35</td>
</tr>
<tr>
<td>III. The Curriculum</td>
<td>37</td>
</tr>
<tr>
<td>Prerequisite Courses</td>
<td>37</td>
</tr>
<tr>
<td>Plan of Study</td>
<td>38</td>
</tr>
<tr>
<td>Outline of Required Course Work</td>
<td>40</td>
</tr>
<tr>
<td>Detailed Course Outline</td>
<td>41</td>
</tr>
<tr>
<td>Sample Curriculum Content (Knee)</td>
<td>51</td>
</tr>
<tr>
<td>Outline</td>
<td>51</td>
</tr>
<tr>
<td>Anatomy</td>
<td>57</td>
</tr>
<tr>
<td>Injury Charts Student Reference</td>
<td>59</td>
</tr>
<tr>
<td>Injuries</td>
<td>62</td>
</tr>
<tr>
<td>Injury Evaluation Sheet for Student Reference</td>
<td>67</td>
</tr>
<tr>
<td>Injury Evaluation Content</td>
<td>68</td>
</tr>
</tbody>
</table>
Chapter 1

History and Definition of the Athletic Training Profession

According to the Board of Certification for Athletic Trainers (BOC) “an athletic trainer is a person who specializes in injury prevention, recognition and rehabilitation specific to those individuals who are physically active.” Practicing athletic trainers must be certified by the BOC. The minimum requirements for individuals seeking certification are to obtain a bachelors or an entry-level master’s degree from a nationally-accredited athletic training education program (ATEP) and pass the national certification examination. According to the Commission on Accreditation of Allied Health Education Programs (CAAHEP) or otherwise now know as the Commission on Accreditation for Athletic Training Education (CAATE), BOC, and National Athletic Trainer’s Association (NATA), these requirements certify that an individual who has completed the minimum requirements obtains entry-level knowledge to practice the roles and responsibilities of a Certified Athletic Trainer (ATC).

The roles and responsibilities of an Athletic Trainer are defined in six domains:

1. Prevention of athletic injuries
2. Recognition, evaluation, and assessment of injuries
3. Immediate care of injuries
4. Treatment, rehabilitation, and reconditioning of athletic injuries
5. Health care administration
6. Professional development and responsibility

The term Certified Athletic Trainer, along with the recognition as an allied health care profession, is relatively new. The history of this fast growing profession began with the introduction of intercollegiate sports. Intercollegiate sports began in the late 1700s and early
1800s. Just as organized competition was beginning to blossom, the civil war temporary halted nearly all collegiate athletic activity in America. However, after the conclusion of the war, intercollegiate athletics quickly resumed. With the organization and increasing popularity of intercollegiate sports came injuries and deaths. This lead to the first hiring of a professional athletic trainer in 1881 at Harvard University.

By the 1900s, the profession was becoming increasingly popular. In 1916, the first book on the subject, entitled Athletic Training, was published by Bilik, a medical student and practicing athletic trainer. In 1920, two brothers with the last name of Cramer, started Cramer Chemicals, Inc. They offered supplies specific to the needs of athletic training.

As the profession progressed, athletic trainers increasingly realized the need for an organization and a definition of their practice. The first attempt to create an organization occurred in 1938, but the association ceased to function during WWII. After the war, in about 1950, the association reorganized into what is recognized today as the National Athletic Trainer's Association (NATA). The mission and goals of this association were to increase standards of the profession and increase its respect within the medical community. The members had the purpose of standardizing the profession so that athletic training skills were no longer learned simply on an informal and unofficial basis. Today the mission of the NATA is “To enhance the quality of health care for athletes and those engaged in physical activity and to advance the profession of athletic training through education and research in the prevention, evaluation, management and rehabilitation of injuries.”

In 1956, a scholarly publication, Athletic Training, was first published and distributed. This publication has evolved into a scholarly journal called “The Journal of Athletic Training.” Through this publication, the first document of NATA Code of Ethics was published. Another
milestone in athletic training happened in 1957, with the recognition and support of the
profession by the National Collegiate Athletic Association (NCAA).

In 1959, the first athletic training curriculum was developed. It was based on the practice
of evaluation techniques and professional preparation. In 1969, several colleges, (Mankato State
University, Indiana University, Lamar University, and the University of New Mexico), created
bachelor degree programs in athletic training. Also in 1969, the NATA created the Education
Committee, which identified the behaviors and objectives of athletic trainers. In 1970, with these
objectives in mind, they were able to administer the first certification examination.

In 1972, graduate programs at Indiana State University and The University of Arizona
become available for students desiring a graduate level athletic training education.

In 1974 the first official definition of an Athletic Trainer was published: “[Athletic
trainers] know the art and science of injury prevention, and management at all levels of activity.”
These practitioners were at the forefront of athletic training and curriculum development.

In 1982, the education committee created the first Role Delineation Study, with the
attempt to specifically define what an athletic trainer’s roles and responsibilities were. This study
lead to categories of what students should be taught during their athletic training education. By
1983, the first set of educational competencies were created for athletic trainers. This list of
competencies was patterned after the competency-based assessment procedures and educational
models other allied health care professions were using at the time. These competencies were
based on an athletic trainer’s performance domains. In 1986, the Education Committee realized
the need for formal education standards. The committee established a policy stating that, in
order to be granted approval by the NATA, universities offering athletic training programs must
meet specified criteria.
In June of 1990, the American Medical Association (AMA) officially recognized athletic training as an allied health care profession. With this recognition more standards and educational consistency were needed. Traditionally, there were two ways to become a certified athletic trainer. The first method was for the student to choose a curriculum-based program with clinical hour requirements ranging from 600-800 hours, with classes specific to the athletic training domains. The second route was through an internship, in which the hours were mandated at 1,500, with seven required courses: anatomy, physiology, exercise physiology, biomechanics, health education, athletic injuries (basic), and athletic injuries (advanced). Both of these routes to become a Certified Athletic Trainer required a bachelor’s degree and a passing score on the certification examination. The existence of two separate routes to certification eventually lead to controversies about the consistency of athletic training education.

To help alleviate some of these controversies, accreditation came to be strongly advocated by many people within the profession. Accreditation is determined by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and by recommendations of the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT). These two accreditation boards ensure that the minimum standards for athletic training education within accredited curriculum programs are maintained. The standards are made available to all programs and are consistent with specific requirements for teaching and training athletic training students.

During 2004, when internship programs were eliminated nationally, Sonoma State University (SSU), after deciding not to convert their program into an accredited educational program, also eliminated their undergraduate athletic training program. In 2004, the facilities were not updated and the resources were limited. The program did not have strong enough
institutional support to create the environment needed to become an accredited athletic training educational program. The end result was simply to cancel the program entirely.

In 2011, several years later, with the stabilization of the new accreditation standards, Entry-Level Master’s Athletic Training Educational Programs (ELM-ATEP) are becoming more popular. In 2004, there were nine programs in the entire United States. In 2011, there are 13. This type of program allows students who possess a bachelor’s degree, but who are not seeking a second bachelors degree, to earn a master’s degree in athletic training. This allows them the opportunity to take the certification examination. In 2004, there was only one full-time certified athletic trainer employed at SSU. In 2011, there are two full-time and three graduate assistant certified athletic trainers employed at SSU for the sole purpose of performing athletic training duties. This increase in resources would make the clinical supervision of students feasible. Furthermore, since an ELM-ATEP is a two-year program, whereas an undergraduate program requires a 4-year degree, this would decrease academic resources needed to support this program.

ELM-ATEP would be ideal at SSU. This is because it is a small campus with intimate professor-student relationships. Because of the unique nature of entering a new profession and gaining a higher level degree, this is an important characteristic of a master’s level program. An entry-level, medical model, competency-based educational program requires that the professors take the time to give feedback through multiple mechanisms. As exemplified in the kinesiology master’s level courses currently in progress at SSU, this institution provides the low student-to-teacher ratio to make this possible.

The athletic training profession has traditionally been dominated by Caucasian males. As the profession continues to grow, the “face” of athletic training is changing - encouraging
females and people of all ethnic backgrounds to join the profession. SSU is a liberal arts university, at which the focus is diversity. A SSU athletic training program would serve to produce more diversity. SSU is also a California State University, making it affordable to many students who would otherwise not have the opportunity to participate in higher education. This is a great opportunity for the SSU Kinesiology Department to strengthen their academic graduate program and create an environment for diversity.

The population of California is growing and becoming more diverse, already providing jobs for 7.23% of all certified athletic trainers in the United States. However, only 4.45% of all accredited universities are in this state, creating a situation in which California does not provide the equivalent educational opportunities as it demands for its athletic training workforce. The closest entry-level masters programs are located thousands of miles from California. To the west, the University of Hawaii, and to the east, Texas Tech University are the nearest ELM-ATEPs. This creates a great need for local and more accessible programs. These circumstances could quickly allow SSU to offer a competitive ELM-ATEP. The popularity and need for an ELM-ATEP is high, and SSU would seem like an excellent candidate for such a program.

SSU could become an integral part of the promotion of the athletic training profession. Since the current faculty previously operated an undergraduate internship program, the strengths of the professors already employed at the university could readily be integrated into the program. ELM-ATEP creates an opportunity for those students who were athletes during their undergraduate education to seek higher degrees. Many local athletes who were unable to participate in the athletic training curriculum as undergraduate students would now have a means to pursue a career path in athletic training. SSU's Kinesiology Department already provides an educational environment, which lends itself to the success of the physically active, and this could
translate into an ELM-ATEP.

The geographic location of SSU offers an ideal site for an ELM-ATEP. There are numerous medical training opportunities for the students, including, junior college certified athletic trainers with equipment intensive opportunities, several local physical therapy clinics, level II trauma hospitals and many nearby orthopedic physician offices.

Sonoma State University has a multitude of programs, and an ELM-ATEP would be a great addition to the existing curriculum. Such a program could be linked to the education department, and has the potential for growth. Many athletic training students who wish to teach at the secondary school level seek to receive a teaching credential, and this program would be ideal for them.

Overall Sonoma State University has already implemented a program similar to this one in the nursing department. The educational theories, the medical nature of the program, and the curricular standards are very similar again lending Sonoma State University to be an ideal sight to implement this program. In the next few chapters I will explore the educational theories and practices of the athletic training program and provide specific examples of the curriculum as a demonstration of implementation of a ELM-ATEP.
Chapter 2

Curriculum Theory and Foundation

In this chapter, I will review literature relevant to the creation of curriculum for an Entry-Level Masters Athletic Training Educational Program (ELM-ATEP). I will review general literature of a theoretical and philosophical nature, with emphasis on the relevance of each item for the creation of an athletic training curriculum.

First of all, I will consider the literature related to the issue of a standardized curriculum. After this, I will examine the material related to the establishment of my goals for this curriculum. This will be followed by some discussion of literature related to the breaking down of the general goals and objectives for this curriculum into more specific and concrete sub-goals.

After this, I will examine three distinct teaching methods and categories of educational experiences some theorists have claimed are necessary for any worthwhile curriculum. This will include the acquisition of factual material, the acquisition and development of skills, and the deepening of understanding and enhancement of critical thinking skills.

Following the discussion of literature related to these matters, I will examine material related to Howard Gardner's theory of multiple intelligences and consider the subject of mastery learning. Finally, I will discuss how I think assessment should be addressed and made meaningful and useful.

Standardization

Throughout much of the 20th century, the creation of a standardized, uniform curriculum for an entire state, or even the entire nation, has been proposed and debated as a means for improving the quality of education.

In athletic training, the curriculum is specific and dictated by the accreditation board.
Standardization is used as an attempt to create consistency and specificity within the profession throughout the nation. Consistency and a standardization of curriculum have become the focus of an Athletic Training curriculum.

Athletic training currently incorporates competencies dictated by the Commission on Accreditation of Athletic Training Education, (CAATE). The accreditation board is responsible for accrediting institutions across the nation, ensuring that the course of study is the same for all students. This specialized curriculum is specifically designed to prepare students for a career in athletic training. Such standardization is a new concept for an athletic training curriculum, but this mechanism is widely believed to help maintain consistency throughout all programs.

One well-known proponent of such standardization of curriculum has been Mortimer Adler, (1983). Adler is most known among educators for his *The Paideia Proposal: An Educational Manifesto*, in which he argued strongly for a standardized curriculum for all K-12 students throughout the United States, “The same course of study for all,” (p.21) would be the optimal way to dramatically improve education for the entire population. Although Adler’s concern was primarily focused on the very general education of elementary school and high school students, and not on university-level or professional education, most of what he has to say on the matter is nevertheless applicable to the type of curriculum under discussion here.

Adler (1983) makes two separate arguments in favor of a standardized curriculum. First of all, he says that a curriculum filled with a bewildering menu of countless electives, confusing alternatives, distracting options and attractive sidetracks must be eliminated, saying: “Allowing them will always lead a certain number of students to voluntarily downgrade their own education” (p. 21).

Basically, Adler’s (1983) argument is that a group of well-informed educational experts
should arrive at a consensus of what the curriculum should be, and once having arrived at that consensus, their program should be made mandatory for all students. He argues for the establishment of a single course of study with a *single* (high) standard, and insists all students be required to take it. No deviations should be allowed. Otherwise, if such options and deviations are allowed, many students, whether from confusion, laziness or any number of other reasons, will tend to avoid the more challenging, and relevant, segments in favor of various less challenging, and invariably less *valuable* segments.

Adler (1983) also raises another somewhat more idealistic yet practical consideration in favor of a standardized curriculum that concerns the ideals of a democratic society. Despite the considerable inequality in terms of socio-economic status, ethnicity, and family background that still exists throughout the United States, and which experience has demonstrated to be very difficult to erase, it is still possible, Adler believes, that a standardized curriculum can mitigate and counteract much of the inequality and injustice by providing an equal education for all:

> The sooner a democratic society intervenes to remedy inequality of homes and environments, the sooner it will succeed in fulfilling the democratic mandate of equal educational opportunity for all. (p.39)

For Adler, the only way to *genuinely* provide an *equal* education for all is to provide a *standardized* curriculum for all. His objections to electives only apply to lower, generalized education. He has no objections to electives at higher levels, such as at the university level or for vocational training, where considerably more specialization is obviously necessary. Even so, while athletic training programs would clearly be considered a university-level, elective course of training, taken only by those interested in such a career path, Adler’s same basic claims about the advantages of standardization would seem to apply. Although Adler (1983) was a strong
advocate of eliminating all of what he felt were frivolous and non-essential courses from the educational system, he nevertheless strongly expressed his opinion about the importance of physical education (p.33), suggesting he believed the same principals he advocated for curriculum and curriculum development in general.

In terms of an athletic training program, a standardized curriculum would mean that regardless of the disadvantages any given student might have experienced previously as a result of earlier gender discrimination, ethnic discrimination, lower socio-economic status or disadvantaged family background, if the person successfully completed the standardized required training and certification program, both the student and potential employers would be assured the graduate had received the same training, skills and knowledge, regardless of which school, state or region they may have received it from.

In addition to Adler, there have been many others throughout the 20 and 21st centuries who have proposed a standardized curriculum throughout the entire United States, or nationwide in various other countries as the UK (Apple 1996) for essentially the same reasons. However, there have also long been severe criticisms against this concept as well, based on various considerations by authors such as Pierre Bouidieu (1989), Michael Apple (1996). For instance, Apple (1996), while not absolutely opposed to a nationwide, standardized curriculum, nevertheless has voiced several serious reservations about the practice. Most of these concerns have centered around the claim that by standardization, whatever it may mean in principal, in practice seems to always turn out to mean that the concerns of only a very small social, political and economically- advantaged elite group end up dictating what types of knowledge are designated as important, and which ideas and knowledge get ignored or devalued. The concerns of this narrow group, along with their own self-interests and prejudices are only entrenched more
deeply within society, while the interests and concerns of all other groups suffer, especially those of women, religious and ethnic minorities, and the economically disadvantaged.

At a glance, we might presume athletics is a completely non-political field, devoid of ethnic, cultural, class or gender biases. However, if so, how is it that football, basketball and baseball command such publicity and economic importance in the United States, in contrast to soccer, badminton, dog-sledding, camel-racing, volleyball, lacrosse and a hundred other sports one might name? Are these favored sports inherently more exciting and interesting than all others, or might ethnic/cultural biases be in operation here? If athletics is free of gender biases and stereotypes, why are there no women on professional or collegiate-level football, basketball or baseball teams? Is it merely an accident that the only time a female athlete receives sustained media attention in the United States is when her external appearance also coincidentally happens to also conform closely to our culturally-conditioned stereotypes of glamour and feminine beauty?

To what extent will a standardized athletic curriculum simply reinforce existing notions about athletic training, health, beauty, glamour, nutrition, fitness, physical discipline and competitiveness at the exclusion of other possible ideas about these subjects? How much does existing curriculum related to athletics reflect the interests of professional sports organizations, team owners and their corporate sponsors, companies that manufacture athletic ware and athletic equipment rather than the genuine opinions of the most qualified athletic training professionals? Is it possible that some athletic training programs reflect the biases of the American Medical Association, medical insurance companies or hospital owners rather than the best interests of individual athletes? Perhaps opinions about injury prevention, physical fitness, health care and injury treatment, such of those derived from traditional Chinese medicine, acupuncture,
chiropractors and other "alternative" health care professionals could be included? It seems that any serious attempt to create a standardized curriculum for athletic training needs to take into account all such considerations.

While taking into account all these considerations the foundation remains the same. Again Mortimer Adler, (1983) in his The Paideia Proposal: An Educational Manifesto, in which he argued strongly for a standardized curriculum for all K-12 students throughout the United States, "The same course of study for all," (p.21) is very similar to CAATE. The accreditation board is responsible for accrediting institutions across the nation, and ensuring that the course of study is the same for all students. I use Adler here to re-emphasize that this a standard curriculum and the accepted knowledge base is the same for all, even though there are suggestions for exploration of different modes of medical treatment the current guidelines are standard and scope of practice of an athletic trainer is not to be changed by individualized programs.

**Importance of General Goals and Objectives in Curriculum Development**

Throughout the 1800s, many had criticized traditional educational systems as inadequate for the needs of a modern industrialized society (Giedion, 1948). It was argued that architects and engineers needed to spend their training time focusing on how to construct buildings and the sciences such techniques were based upon, not studying Hebrew and Greek so they could read the Bible in the original language, as all "highly educated" people were traditionally supposed to be able to do. Medical professionals need to be studying biology, anatomy, pharmacology, physiology, procedures of diagnosis and the healing arts, not devoting years to the study of Roman history, classical poetry and medieval philosophy. Even so, traditional ideas about education died hard, and new and practical ideas about precisely how to create the kinds of new curriculum so necessary for the modern world were in short supply. How exactly did one decide
what competencies were important for a specific profession, and how precisely did one set about creating a sequence of educational experiences to instill that set of competencies?

Perhaps the earliest attempt to address the matter of curriculum development in a rational, pragmatic and scientific way was Franklin Bobbitt (1924). Bobbitt, in his *How to Make a Curriculum*, observes: “Because of social changes, education must shift its ground in fundamental ways. It must perform functions which it has not hitherto attempted, and discontinue labors no longer serviceable” (p.7).

Bobbitt was quick to point out that it is a mistake to confuse progress with mere change. He discouraged the making of changes simply for the sake of change, advising that the *status quo* is nearly always preferable to making changes in the wrong direction. He therefore insisted considerable precision, attention to detail, and concern for achieving realistic and practical improvements must be employed whenever proposed changes in a curriculum are made. He advised a very scientific approach to curriculum development.

As the first step in curriculum development, Bobbitt (1924, p. 9) appealed to the analogy of planners who would build a railroad from Omaha to Los Angeles, pointing out that before any specific details could be worked out, a *general* clarification of the overall goals and map of the terrain to be dealt with must be arrived at. Only after the *general* goals have been clarified does it begin to make sense to begin to break down the entire task into many smaller subtasks, which can then be addressed individually. Each of these smaller subtasks can be further broken down into smaller units and subtasks. This process can continue until such a point where it becomes possible to specify a series of specific and concrete actions necessary to be performed at particular times and places.

For example, in many cases, track can simply be laid over a length of level terrain in a
straightforward manner. At other points, specific obstacles of a specific type must be dealt with, each calling for its own type of response. An ordinary railroad track can be constructed to cross some kinds of mountains. Other kinds of mountains must be tunneled through. Some kinds of valleys will require a certain kind of bridge, while other valleys will require an entirely different type of bridge. So it also is with curriculum development. Some kinds of challenges can be adequately dealt with using a simple lecture or assigning a book to read, while others require demonstrations, hands-on practice or some other kind of training experience. For Bobbitt, all of these issues can be anticipated by the curriculum designers, and the single best solution for each can be built into the curriculum.

Bobbitt (1924) advises those who would create a curriculum to base it as fully as possible on the most up-to-date and scientifically-verified information available. He was well aware that exact and perfect knowledge of any given subject matter is seldom (if ever) available, but nevertheless, Bobbitt insists that if the curriculum designers simply utilize logic and science to decide upon what is, in the consensus of expert opinion, the one best concrete solution available at the time, and incorporate it into the curriculum, then all will be well.

A central feature of Bobbitt's approach to formulating the general goals of a curriculum is the creation of what he refers to as the "comprehensive list of characteristics and abilities." In the creation of the list of abilities, competencies, and characteristics, Bobbitt advises collecting the input of experienced, seasoned professionals with extensive, in-depth and relevant experience in the matter. Particularly important is the input from those with demonstrated high levels of competence and skill in the particular vocation, such as the top performers in the field and their supervisors:

Physicians and nurses possess specialized ability to assist in formulating the
objectives of health education... specialists in the field of recreational agencies should advise relative to those fields. (p.39)

Bobbitt’s approach to curriculum development or improvement is thus very grounded in real world experience and pragmatism. Such advice would seem to be applicable to any contemporary or future attempt to create a curriculum for athletic training.

Bobbitt also makes another astute observation here as well: “List of abilities should be determined wholly without reference to subjects or departments. It should present simply the characteristics and abilities needed by men and women.” What he seems to mean here is that the first step is to specify the goal without concern for how specifically it will be achieved. Only later, after the goals have been clarified and stated will it become important to deal with the important issues of what information needs to be studied, and what educational activities and training experiences will be needed to create each of the abilities.

Bobbitt (1924, p. 33) warns curriculum makers to avoid goals that are only vague, high-sounding hopes and lofty aspirations in favor of goals that are capable of being clearly stated in concrete terms and easily understood. Once these goals for a general curriculum (or a specific class) have been worked out and agreed upon, he says it is very important to reduce them to written form, and make them available to all involved in the process. This should include all who are assisting with the design of the curriculum, the instructors who will be implementing it and the students who will be on the receiving end of it:

The objective should be stated in definite terms. When so stated, it is possible for educationalists to know with certainty at what they are aiming. It is also possible for parent and student to understand. (p.37)
For Bobbitt, this set of clearly set objectives is vital. In each syllabus objectives are to be clearly stated, required competencies specified in a student handbook available upon acceptance into the accredited program. Students, instructors, parents, and administrators should all be aware of the goals, standards, and expectations of each student.

For Bobbitt, only after the list of general goals and specific necessary competencies have been decided upon and spelled out will it become possible to begin the process of creating a specific sequence of educational experiences and training exercise that will facilitate the acquisition of the needed abilities and the achievement of the general goals. Following this procedure will greatly simplify the process, and will avoid putting the cart before the horse. Once this has been accomplished, the curriculum designer can set about using scientific knowledge, logic, and expert opinion to create a specific sequence of educational experiences that will instill each required competency within the students.

To many educators, Bobbitt’s concept of a scientifically-derived and rationally constructed curriculum based on the consensus of expert opinion was very appealing. The idea that a small group of experts could establish all the goals, pre-specify and anticipate all the solutions and content of the curriculum seemed very sensible and attractive. This same basic approach, with minor modifications, is still more or less the prevailing view of curriculum development in the United States, Europe and Asia.

To a large extent, such principles have guided the way the existing athletic training curricula have been created. The required competencies are specified and used to ensure entry-level knowledge and skills to practice athletic training duties. CAATE has determined the essential skills needed for athletic training through the Role Delineation Study produced by the Board of Certification. The essential skills and knowledge are organized in two distinct ways.
First of all, the essential knowledge was derived from the domains of athletic training. These domains are created from a role delineation study, in which the goal was to define and specifically state what the functions of an athletic trainer are. Secondly, the specific skills were derived from the competencies set in place by the educational board of accreditation, which states that the students graduating from an accredited program must show proficiency in these competencies in order to be eligible to take and pass the certification examination. This system is consistent with the ideas of Bobbitt (1924), and, at least so far, it seems to have worked passably well.

Additionally within the standardized curriculum are clearly set objects or general goals of athletic trainers. According to the Commission on Accreditation of Allied Health Education Programs (CAAHEP), BOC, and National Athletic Trainer’s Association (NATA), these requirements certify that an individual who has completed the minimum requirements obtains entry-level knowledge to practice the roles and responsibilities of a Certified Athletic Trainer (ATC).

The roles and responsibilities of an Athletic Trainer are defined in six domains:

1. Prevention of athletic injuries
2. Recognition, evaluation, and assessment of injuries
3. Immediate care of injuries
4. Treatment, rehabilitation, and reconditioning of athletic injuries
5. Health care administration
6. Professional development and responsibility

These domains define what an athletic trainer is and the responsibilities that an athletic trainer holds. These domains are what define an athletic trainer and therefore derive athletic
training curriculum.

However, it may be possible to substantially improve upon existing curriculum, for Bobbitt’s approach is by no means the final word on the subject of curriculum development. Although Bobbitt’s basic approach quickly became popular, and remains so today, shortly after he published his seminal works, severe criticisms of his basic approach, main assumptions and central principles began to appear, Boyd Bode (1927), with his *Modern Educational Theories*, being the earliest. Basically, Bode claimed that most of what Bobbitt describes as having been arrived at by logic and scientific objectivity is merely a thinly disguised masquerade for maintaining the status quo, reinforcing social prejudices and preserving the privileged elite and their preferred, but often obsolete and perhaps narrowly self-interested way of doing things. According to Bode, upon close examination, many of Bobbitt’s supposedly completely rational and scientifically-derived ideas seem to be merely personal or cultural biases and extremely value-laden assumptions with dubious factual support.

Likewise, more recently, Kliebard (1992) has echoed many of Bode’s criticisms, and added a number of his own. As Kliebard points out, though Bobbitt’s approach is still widely respected and cited as the foundation of modern scientific curriculum development, when one actually *reads* Bobbitt’s original papers, his approach seems rather dated. Many of his ideas reflect some rather obsolete Victorian-era ideas about social relations and the infallibility of authority figures. For instance, Bobbitt (1924) devotes an entire chapter specifically to the curriculum for the training of woman and girls to be housewives. This was based on various sexist assumptions that a sexual division of labor is inherent within the human condition, and the self-evidently obvious (to Bobbitt) presumption that such housewife/mother roles would *always* remain the prime destiny of all women. Much of the rest of his “practical, scientifically-derived
advice" at times sounds extremely metaphysical, almost to the point of being esoteric. For instance, Bobbitt advises teachers to inculcate "an attitude of obedience towards immutable and eternal laws which seem to exist in the nature of things" (p.26). Likewise, another of Bobbitt's "scientifically-derived, pragmatic goals" to be built into the curriculum is "the ability to keep one's emotional serenity in the face of circumstances however trying." This was supposed to be a scientifically-constructed school curriculum, but such phrasing could as easily have come from a Zen meditation instructor, Indian guru, or a Tibetan mystic.

A key feature of Bobbitt's system of curriculum development is the claim that the centralized committee of curriculum design specialists can "scientifically" predefine and pre-specify in advance what will be important for all students to be learning and for all teachers to be teaching. It is perhaps this feature that has been most severely criticized by numerous authors (Bode, 1927; Kliebard, 1992). Such critics have said the presumption that the needs of all students can be so accurately anticipated and curriculum pre-specified to such a degree is extremely naïve, presumptuous and arrogant. Such authors have repeatedly pointed out that, despite the most conscientious efforts, much of the curriculum created at any point in time will need to be changed at some point in the near future as better information becomes available, technology advances, professions change or new challenges or unforeseen developments arise.

This will especially be the case in fields where intensive research is going on and in which technology is advancing rapidly, as is the case in any medically-related field. In such fields, scientific advancement, technological changes and alterations of policy are difficult, if not impossible, to anticipate. While Bode (1927), Kliebard (1992) and other critics of Bobbitt would not dispute the value of setting general guidelines and objectives, they would also emphasize the need to continuously update the curriculum and make frequent ad hoc modifications as
circumstances require it. In their opinions, the curriculum needs to be much more flexible and be much more finely-crafted to meet the changing needs and aspirations of the students.

From this perspective, the goals and content assembled by a group of educational experts, and which a generation of instructors and students have consistently found valuable, carries a high probability the present year’s instructors and student will also find it so, there is no guarantee of this. Such an assembled collection of materials might provide a set of very good examples, as well as providing inspiration, guidelines and suggestions of how to deal with each issue. However, all of this might be considered merely a point of departure, something to fall back on in the absence of better ideas, but none of the pre-specified lessons or examples should be considered a dogma or the last word on the subject.

Kleibard (1992) appeals to the analogy of the way children learn language. They do not do so by merely rehearsing a long list of every useful sentence they are ever likely to need in their lives. They do so by learning a vocabulary and the general principles of grammar, syntax and sentence construction that eventually allow them to construct a potentially infinite number of sentences. Most of these sentences they will have never uttered previously, and each of them will constitute a response precisely tailored to the question they have been asked or to the idea they need to communicate at a given, and largely unanticipated, moment in time. Something similar would need to be done for athletic training – the teaching of foundational knowledge and many key principles which will eventually allow the formulation of effective responses to a near-infinite set of possible scenarios, nearly all of which cannot be predicted or anticipated except in the most general of terms. No two athletic challenges, accidents or emergencies are ever exactly alike, and the response to each must be unique, appropriate and precisely tailored to the demands of the immediate moment.
Categories of Educational Experiences and Teaching Methods

If we follow the models of Bobbitt and similar theorists, even in a general way, after a list of general goals and objectives has been decided upon, these general goals are reduced to a set of concrete sub-goals, competencies, skills and content, it still remains to flesh out the general “map” of the curriculum and create a coherent sequence of educational experiences that will instill the necessary knowledge within the students.

Of particular relevance here are some of the key points regarding curriculum design expressed by Adler (1983). Adler claims that three distinct “modes” of learning are necessary in a well-balanced and comprehensive curriculum. He refers to them as the “three columns of learning.” Adler’s column one (1983) refers to the acquisition of knowledge and presentation of facts, as through memorization, listening to lectures or the reading of books. A second column, which he refers to as “development of skills,” involves hands-on experiences, coaching and supervised practice. A third mode, which he refers to as column three, involves the “enlargement of understanding,” primarily through discussions, philosophical analysis and theoretical analysis.

Having once decided that a particular competency is necessary for an athletic trainer, and that it must therefore be included within the curriculum, the question for each such competency would then become a matter of which of Adler’s three columns, (or what combination of them) are needed to most effectively instill this competency within the students.

A significant amount of didactic education and acquisition of purely factual knowledge through lectures, training videos and directed reading is necessary for athletic training programs, (what Adler labels as "Column One” learning), as well as a substantial amount of theoretical analysis, what Adler refers to as column three education. However, for an athletic training curriculum, clearly what Adler refers to as “Column Two” learning, the acquisition of specific
skills through supervised practice, high-quality coaching, “learning by doing” in a hands-on fashion, with substantial observation and feedback from the instructor, would need to form the majority of the curriculum.

**Acquisition of Factual Knowledge**

Athletic Training uses foundational knowledge and applies it to a specialty. A vital component in any ELM-ATEP must involve students learning a considerable amount of medical terminology, physiology, knowledge about the mechanism of injury, information about the anatomy specific to injury recognition, and assessment of damage. Much of this foundational knowledge can be transmitted in a didactic fashion, via lectures, images, the reading of articles and books, training videos and similar methods – what Adler refers to as column one education.

**Critical Skill Development**

As important as the acquisition of factual knowledge is for any athletic training program, it still represents only a small fraction of the knowledge that needs to be acquired. Basic skill development is defined as “raw patterning” of the intelligence, and in athletic training, such basic skill development must be a central feature of course work. The majority of these skills must be acquired through what Adler (1983) refers to as “Column Two” education, or skill development. The approach to teaching is just as important as the facts and concepts presented. This is how Adler describes this mode of education:

Since what is learned here is in performance, not knowledge of facts and formulas, the mode of teaching cannot be didactic. It cannot consist in the teacher telling, demonstrating, or lecturing. Instead it must be akin to coaching that is done impart athletic skills. A coach does not teach simply by telling or giving the rulebook to follow. A coach trains by helping the learner to do, to go through the right motions, and to organize a sequence of acts in a correct fashion. He corrects faulty
performance again and again and insists on repetition of the performance until it achieves a measure of perfection (Adler 1983).

The Deepening of Understanding

Another key component for any ELM-ATEP involves higher order intelligence, where synthesis of information begins to take place. In athletic training, this is when a student begins to make decisions based on their foundational knowledge. The student needs to learn to anticipate an injury, with the possibility of prevention. This type of instruction is new to the athletic training educational field. The students are being asked to use critical thinking and cognitive skills to assess, diagnose, rehabilitate, and use medical knowledge to make clinical decisions. Several educational philosophers discuss this type of educational model as the highest level of education. For instance, this is what Adler (1983) refers to as “Column Three” education, or the “enlarged understanding of ideas and values:"

The appropriate mode of instruction column 3 is neither didactic nor coaching. It cannot be teaching by telling and by using textbooks. It cannot consist in supervising the activities involved in acquiring skills. It must be Socratic mode of teaching called ‘maintenance’ because it helps the student bring ideas to birth. It is teaching by asking questions, leading discussions, by helping students raise their minds up from a state in understanding or appreciating less to a state of understanding and appreciating more.

In the context of an athletic training program, this process involves not so much philosophical discussion, but rather more the presentation of hypothetical but realistic scenarios and problems to stimulate practice and discussion of how the student would apply knowledge and skills to formulate an appropriate response if confronted with such a scenario. The idea is
not to simply memorize every possible scenario that might occur and the one best response to it, but rather develop and strengthen the students' ability to access knowledge to formulate responses to unfamiliar challenges. This process is akin to the example from Kliebard cited previously regarding the acquisition of language, which involves not simply rehearsing a set of useful sentences, but rather learning how to apply rules of grammar and sentence construction to formulate whatever sentence is appropriate in a given context, whether familiar or not. Here, the student is learning to formulate appropriate responses to any given situation, essentially all of which will be unique, unanticipated and impossible to pre-specify an exact solution for in advance. This is good practice for dealing with a real and largely unpredictable world. Such a practice approach to teaching problem-based learning can help transform entry-level athletic trainers into critical thinkers and problem solvers, rather than simply practice pattern recognizers.

**Theories of Multiple Intelligences**

A model somewhat similar to but far more elaborate than that of Adler’s three columns of learning is Howard Gardner’s theory of multiple intelligences. In the theory of multiple intelligences, Gardner (1983) explains the seven ways of knowing. In this model, intelligence is viewed as being comprised of seven (or more) distinct modes of information processing, each with its own features and characteristics:

I argue there is persuasive evidence for the existence of several relatively autonomous human intellectual competencies, abbreviated hereafter as ‘human intelligences,’… that there exists at least some intelligences that are relatively independent of each other, and they can be fashioned and combined in a multiplicity of adaptive ways by individuals and cultures. (Gardner 1983)

Each of these types of intelligence is thought to have its own neurological underpinnings,
processing mechanisms and memory systems. According to Gardner (1983), the degree of
development of each of these seven intelligences varies widely between individuals, and each
type of skill may activate the various intelligences in varying degrees. Gardner identifies these
seven intelligences as the following: (a) linguistic, (b) musical, (c) logical-mathematical, (d)
spatial/imagery, (e) kinesthetic/bodily, (f) social-interpersonal, and (g) intrapersonal.

These seven intelligences, though distinct, do not operate in complete isolation. For
instance, musical skills involve not merely the processing of auditory information (musical
intelligence). To be a good musician also requires a significant amount of manual dexterity
(kinesthetic intelligence) to play the musical instrument well. Likewise, nearly all athletic
activity requires not only kinesthetic intelligence and fine motor control, but also a considerable
amount of visual/spatial intelligence in order to follow the position of a ball, keep track of the
position of goals, fellow team members and opponents. Formulation of skillful actions during
any athletic performance also requires a considerable amount of social intelligence in order to
coordinate with teammates and to anticipate the likely responses of opponents to ones’ own
actual or intended movements.

There are many minor arguments about whether there are exactly seven intelligences,
nine, or dozens, but such subtle distinctions need not concern us here. In practical terms, such a
model implies that different kinds of presentations may activate each of the various intelligences
in a different way, and different styles of presentation may work better for some skills and for
some people than others. Such a model would seem to have considerable practical implications
for the design of an athletic training curriculum, and offers many possibilities for increasing the
mastery of competencies.

Awareness of multiple intelligences and multiple modes of learning can be incorporated
into an athletic training curriculum in a variety of ways, such as varying the delivery of the subject matter, yet emphasizing that the subject matter does not change. Gardner (1983) discusses the seven intelligences as a comprehensive way of learning. By teaching the same subject in such a way that as many as possible of the intelligences are activated and incorporated will bring the most success, since each student will be given the opportunity to excel. In athletic training, this principle can be applied throughout the curriculum. For instance, a typical athletic training student will first hear about a skill or competency in lecture, (verbal/linguistic intelligence). Then the student will have time to practice the skill, (body/kinesthetic intelligence). They will then be given the opportunity for feedback, (interpersonal intelligence). Ideally, the feedback mechanisms will be constructed in a positive manner in order to increase the student’s self-esteem, which will encourage them to continue to practice until mastery is achieved, (intrapersonal intelligence). Eventually, the student will be able to use logical intelligence and visual/spatial intelligence in order to think independently and make clinical decisions based on foundational knowledge.

**Mastery Learning**

Of particular relevance to the creation and implementation of any kind of ELM - ATEP is an educational model generally referred to as “mastery learning.” In contrast to the more standard approach, which might be termed “grading on a curve,” in which only a small fraction of the students are expected to achieve mastery of the subject, mastery learning is designed to ensure that nearly every student in the class becomes a “master” of a subject matter (Bloom, 1968).

In the more standard approach, a class of students is presented with the information, and an examination is given at the end to determine what percentage of the material each student has
successfully learned. The most successful fraction, generally between 5-10% of the class, will be judged to have “mastered” the material, and thus be given the highest grade (typically an A). The remaining 90% or so who do not score so high will be assigned lower grades, typically Bs, Cs, Ds or Fs, depending on the percentage of material the exam reveals them to have mastered.

There are many variations of this approach, but this description captures the essence of it. This is generally assumed to be the optimal that can (or should) be achieved by an educational system. Under this paradigm, the sub-mastery performance of the overwhelming majority of the class is described as being due to their lesser intelligence, inadequate preparation, poor study habits, sub-optimal motivation, “low aptitude,” learning disabilities, or with some similar term that places the fault clearly with the students. Seldom is this issue considered evidence of insufficient teacher training, an inefficient educational system or a “teaching disability.”

Many have criticized this basic paradigm of education, claiming it seems like a highly sub-optimal, highly unproductive use of educational resources, or even that it seems to have been deliberately “rigged” to guarantee the failure of the majority of students. An alternative approach, generally referred to as mastery learning, has been proposed by various educational experts over the previous century, such as Bloom (1968) and Block, Efthim and Burns (1989).

As described by Block, Efthim and Burns, (1989, pp. 17-20), mastery learning works like this: The overall course material is divided up into a series of shorter units or modules, each with a coherent set of skills, ideas, information and concepts, generally a week or two in duration. The students are presented with a series of structured educational experiences, more or less as in a conventional classroom setting. After the completion of this first module, the students are given the first of a series of “formative” evaluations. These evaluations are intended to be diagnostic-progress tests, and do not influence the final grade of the students. These tests are instead
intended to reveal to both the student and the instructor which components of the material each particular student has mastered, and which parts of it each student still need to work on further.

For each component that each student has not mastered, they are given further instruction intended to remedy the deficiency. This might consist of review sessions, question and answer periods, individual attention from the instructor, special tutorial sessions, supplemental reading material, or whatever else the instructor feels will correct the specific problem.

While the others work to correct their deficiencies, those students who, as revealed by the evaluation, have demonstrated mastery of the first module, they are instead given the opportunity to spend the time in more challenging “enrichment” activities related to the purposes of the class, assist with the tutoring of those class members who need it, or both.

After sufficient time to work with the “corrective” measures for the first module has been completed, the class then moves on to the second module, and the same basic “teach-test- reteach” cycle is repeated. A continuing series of these formative evaluations are given after the presentation of each unit, (testing for mastery of both the content of the most recent unit, as well as all previous ones), each time followed up by supplemental, “corrective” instruction, tailored to remedy the specific deficits and promote the mastery of each student. By the time the course is completed, each student will have had numerous opportunities to discover and correct any and all “absences of mastery” of any portions of the course material.

Finally, at the grading phase, the instructor evaluates the students with a “summative” examination, a final exam that covers all the modules and course material. Those who demonstrate mastery, generally defined as the equivalent of an A grade in the conventional educational system, will be given an A grade for the course. Those who score below this high standard are given a grade of I (incomplete) or its equivalent, and have the option to repeat the
Thus, this goal is not simply to allow only the top 5-10% of the class who have the highest aptitude for the material to achieve mastery, but to allow essentially the entire class to achieve mastery. This is clearly a more individually-focused and labor-intensive approach than is used by the conventional educational system, but advocates of mastery learning insist the extra effort and attention to detail is well-rewarded. For instance, according to Bloom, (1968), as many as 90% or more of a typical class educated via this method may achieve mastery, essentially scoring the equivalent of an A grade on the final exam.

Mastery learning is probably not the solution to every problem plaguing the modern educational system. Not every subject may lend itself equally well to a mastery learning approach. Such an approach may also turn out to be prohibitively expensive in terms of time and resources when confronted with inordinately large numbers of students who are inordinately underprepared, have severe chronic learning disabilities, or who have no interest in the subject matter. However, an athletic training curriculum seems to be ideally suited to a mastery learning approach, and such methods have been at least tacitly used in the field for a long time, even when not formally referred to as such.

**Supervised Independent Practice**

At a very late stage of a training program, something akin to what Adler (1983) refers to as Column Two learning (supervised practice), but significantly more advanced, can be given to the student. This is what Bloom (1987) and others refer to as supervised independent practice. Such practice would still be under the supervision of a certified athletic trainer who would monitor progress and supply feedback, but the ATC will take a more “hands off” approach. This is done in order to allow the student the opportunity to function more or less on their own, and to
allow the student to attain an even higher level of mastery of the skills of an entry-level athletic trainer. At this stage, the student would also be expected to receive peer-evaluation. The students would practice their competencies, but would not be deemed proficient until a peer and a clinical instructor approves them. This would allow the teachers the responsibility for the transfer of learning, rather than merely teaching their own practices and leaving it up to the students to transfer the knowledge to practice.

Vocational Guidance and Selection

According to many theorists, such as Lazear (1991), the final stage of any good training program should be focused upon vocational pursuits and selection of a career. This may be dealt with in any number of ways, but, for example as Lazear points out, some consideration of each student’s relative strengths and weaknesses in terms of the various intelligences should play a role in determination of career choice. Those career options will be based on the specific intelligences with which the student most identifies. A student may enter into research, college level athletic training, professional level athletic training, educational athletic training, etc., depending on their specific strengths in various intelligences.

Any consideration of career goals must be heavily grounded in not only knowledge of the relevant fields and available job opportunities, but also some consideration of matters that Gardner (1983) would consider the domain of intrapersonal intelligence. What are the student’s deepest aspirations, personal goals, and genuine interests? What kind of a career path is going to truly be fulfilling for them, and what are the necessary steps to creating such a career for themselves?

Students will also need to understand that training and skill development does not end when they leave school, and the curriculum should help instill this awareness. The development
of skills continues after graduation, and can be constantly improved through practice and further training. Thus the need for continuing education hours to stay certified even years after graduation (Adler, 1983). Kliebard (1992) notes, the world is continually changing and new knowledge comes into existence every day. To stay current, a competent professional will need to stay abreast of new developments relevant to their field.

**Assessment**

Assessment in an athletic training curriculum should involve several approaches: (a) verbal, written, (b) self assessment, (c) teacher assessment, (d) peer assessment, (e) testing procedures, and (f) learning over time. These approaches should all be used to evaluate a student throughout their learning process. Even after a student has learned the foundational knowledge, developed the necessary critical thinking skills, and passed the certification examination, this does not guarantee this student will be a “good” athletic trainer. This process will only ensure that the student will have the entry-level skills necessary to practice as a certified athletic trainer.

Existing athletic training curriculum is based on pre-determined domains and competencies, which provide structure to the content of the curriculum. The certification examination is the measure set in place to ensure mastery of the specific competencies. The standards are presented to the students upon their entry into the program and are closely monitored throughout the program. Gentile (1996) makes that the claim that the standard of passing is what defines mastery. According to Gentile, this is an important aspect to the success of students learning for mastery that specific instructional objectives are known to the student (i.e., no mystery of learning). Students in an ELM-ATEP are evaluated by peers and in increasingly difficult competency-based situations.

In accredited athletic training programs, the domains and competencies are not just taught, but
rather they are practiced and tested for proficiency. In a case where a student does not show proficiency, in accordance with the principles of mastery education (Bloom, 1968; Block, Efthim & Burns, 1989), it is the responsibility of the program to reeducate that student until proficiency is demonstrated.

Here we will focus on the components of evaluation and assessment:

In athletic training there are numerous opportunities for formative evaluations, which are designed to test the same information in several ways. Tests can be written, verbal and/or demonstrative and self evaluative. Bloom (1968) defines re-teaching as the time needed when a student does not demonstrate mastery of a subject. In an athletic training curriculum, this would need to consist of the time spent with the student’s Approved Clinical Instructor (ACI). This will require proper communication between the professor and the approved clinical instructor about skills that need re-teaching and re-evaluation (Ven, 2005).

Bloom (1968) discusses the need for reinforcement. This will also need to be designed into the structure of a curriculum. In addition to ordinary course work, students are also be required to participate in clinical time. They are expected to spend time in hospitals, physical therapy clinics, physician offices, and many other clinical sites. This clinical time will give students exposure to real injuries and help reinforce information and training about topics such as mechanism-of-injury, specialized tests, treatment, and rehabilitation, and allow the students to see their knowledge translate into practical and measurable competencies (Ven, 2005).

In accordance with Bloom’s (1968), concepts of mastery learning, Gardner’s (1983) concepts of multiple intelligences, Lazear (1991) discusses multi-modal grading and testing practices. This is inherent in athletic training, for the certification examination consists of three parts: (a) the multiple choice section, (b) the written simulation section, and (c) the practical
section. A student must pass all three sections to obtain a certification for athletic training. Because of the design of the certification examination, the existing curriculum programs have all designed their testing and assessment procedures to simulate the certification examination. Lazear suggests assessment by using journals, portfolios, verbal assessment and written assessment.

In athletic training, assessment is measured through multi-modal measures. These are primarily written examinations and practical examinations, which are used as tools to measure proficiency of skill. Athletic training curriculum emphasizes that testing and ideas should come from experiences of the student (Dewey, 1940).

Athletic training curriculum should create opportunities for students to gain injury experience in a variety of ways, from aquatic to equipment insensitive sports, and upper extremity to lower extremity risk sports. Through these experiences, the student gains first-hand experience of injury evaluation, management and treatment. During these experiences, it is mandated that the student complete "proficiencies," otherwise known as tests, in specific content areas, related to these experiences. Because athletic training is increasingly evolving into a scientifically, systematic evaluation, and treatment-based health care profession, the basic principles of athletic training need to rely on the scientific method for support and justification of the health care principles in this profession.

In athletic training, it is important that the student receives the benefits from several feedback mechanisms in order to gain proficiency in the competencies. Summative evaluations are structured into athletic training programs, as students will receive constant feedback from course work, their ACI, the program director, and clinical coordinator at least once a semester. This is designed to help the students get feedback as well as constructive criticism on a regular
basis. In mastery learning, this is called the delivery of corrective feedback, and remedial instruction to require students who did not master the material on initial attempts to achieve the objectives (Gentile, 1996). The need to assess and re-evaluate leads the student to a higher level of thought process, such as critical thinking and absolute comprehension or mastery of subject matter, consistent with the ideas of Adler (1983) and his concepts of “Column Two” education.

**E-learning**

Athletic training curriculum continues to change, especially in California. As licensure becomes more of an issue, questions about the content of the curriculum and how the future curriculum will be delivered will continue to be raised. One new element on the horizon is e-learning. Is there a place for e-learning in athletic training? The current educational frameworks may allow for this new type of learning, at least in specific content areas. Since the students would not need to be on campus as often as previously expected in a classroom-based learning environment, this could allow for more students in a program. This may be a good solution for California, a state identified as having an insufficient number of educational programs relative to need. The need for hands-on practical experience is indispensable for an athletic trainer and there is no substitute for this. However, for the subject matter courses, such as nutrition and psychology, e-learning may offer at least a partial solution. Many college and universities have adopted e-learning platforms to utilize computers as an instructional tool. E-learning programs such as “Blackboard” teach developmental skills in a Mastery Learning format (Boggs 2004). Athletic training curriculum is a young curriculum, which leaves room for changes and growth throughout the country. The fundamentals of this profession will need to continue to be maintained while being updated with new medical technology and techniques, which will lead to important changes in the educational curriculum. Robert Hutchins (1970) sums up educational
changes in the United States in *The Learning Society* by saying: "Russians found themselves abandoning the aim of versatility and turning out narrowly trained specialists. The Americans have not been able to distinguish between education and training."

In summary, then, the general concerns that I needed to guide the process of building a new ELM ATEP were: (a) Standardization, but of a sort that must incorporate concern for minority points of view; (b) clarity of general goals and objectives, which may be broken down into small, more manageable sub-goals; (c) anticipation of as many problems and challenges as possible, while making sure to teach students that they will need to improvise and stay on top of a changing field and stay current with the latest research and medical advances; (d) making sure that students learn to distinguish between what is truly an advance and what is merely a fad, what research is valid and what is not. Students must learn that it is the athletes they work with and serve whose concerns must remain foremost in their mind.
Chapter 3

The Curriculum

Prerequisites Courses for entry into the ELM-ATEP Program

• Bachelors Degree

• Anatomy with lab (equivalent to 3+ units)

• Physiology with lab (equivalent to 3+ units)

• Exercise Physiology (equivalent to 3+ units)

• General Psychology (2+ units)

• Probability and Statistics (3+ units)

• Introduction to computers and computing (3+ units)

• First Aid and CPR with AED for the professional Rescuer
Entry Level Master's Athletic Training Academic Program Plan of Study

Summer #1: (9 units)

KIN 340 Emergency Response (2 units)
ATEP 2 (KIN301) Athletic Training Theory and Ethics (4 units)
KIN 500 Intro to Scholarly Inquiry in Kinesiology (3 units)

Fall #1:

KIN 342 (ATEP 3) Upper Extremity Injuries, Evaluation and Diagnosis (3 units)
KIN 305 Psychology of Human Movement (3 units)
KIN 201 Foundations of Kinesiology (3 units)
BIOL 307 Human Nutrition (3 units)
ATEP 1a Clinical Education I (2 units)

Spring #1:

KIN 442 (ATEP 4) Lower Extremity Injuries, Evaluation and Diagnosis (3 units)
KIN 599a Culminating Project (3 units)
KIN 550 Seminar in Biomechanics (2 units)
KIN 460 Conditioning for Performance and Health (3 units)
ATEP 1b Clinical Education II (2 units)

Summer #2:

ATEP 1c Clinical Education III (2 units)
KIN 599b Culminating Project (2 units)
Fall #2:

ATEP 6 Rehabilitation/Therapy Exercise Movements (3 units)

KIN 599c Culminating Project (2 units)

ATEP 7 General Medical Conditions, and the Diseases Process (3 Units)

KIN 560 Advanced Physiology of Exercise (3 units)

ATEP 1d Clinical Education IV (3 units)

Spring #2:

ATEP 5 Modality Theory and Practice (4 units)

ATEP 9 Basic Pharmacology for Athletic Trainers (2 units)

ATEP 8 Health Care Administration (4 units)

ATEP 1e Clinical Education V (3 units)

Summer #3 (optional)

KIN 578 Project Continuation (1-3 units)
**ELM-ATEP Outline**

**Core Kinesiology Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 307</td>
<td>Human Nutrition</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 201</td>
<td>Foundations of Kinesiology</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 305</td>
<td>Psychology of Human Movement</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 340</td>
<td>Emergency Response</td>
<td>2 units</td>
</tr>
<tr>
<td>KIN 460</td>
<td>Conditioning for Performance and Health</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 550</td>
<td>Seminar in Biomechanics</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 560</td>
<td>Advanced Physiology of Exercise</td>
<td>3 units</td>
</tr>
</tbody>
</table>

**Core Thesis/Project Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 599</td>
<td>(a,b,c) Culminating Project</td>
<td>2 units each course</td>
</tr>
<tr>
<td>KIN 500</td>
<td>Intro to Scholarly Inquiry in Kinesiology</td>
<td>3 units</td>
</tr>
<tr>
<td>KIN 578</td>
<td>Project Continuation (optional)</td>
<td>1-3 units</td>
</tr>
</tbody>
</table>

**Athletic Training Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 1</td>
<td>(a-e) Clinical Education I – V</td>
<td>2 units each course</td>
</tr>
<tr>
<td>KIN 301</td>
<td>(ATEP 2) Athletic Training Theory and Ethics</td>
<td>4 units</td>
</tr>
<tr>
<td>KIN 342</td>
<td>(ATEP 3) Upper Extremity Injuries, Evaluation and Diagnosis (3 units)</td>
<td></td>
</tr>
<tr>
<td>KIN 442</td>
<td>(ATEP 4) Lower Extremity Injuries, Evaluation and Diagnosis (3 units)</td>
<td></td>
</tr>
<tr>
<td>ATEP 5</td>
<td>Modality Theory and Practice</td>
<td>4 units</td>
</tr>
<tr>
<td>ATEP 6</td>
<td>Rehabilitation/Therapy Exercise Movements</td>
<td>3 units</td>
</tr>
<tr>
<td>ATEP 7</td>
<td>General Medical Conditions, and the Diseases Process</td>
<td>3 Units</td>
</tr>
<tr>
<td>ATEP 8</td>
<td>Health Care Administration</td>
<td>4 units</td>
</tr>
<tr>
<td>ATEP 9</td>
<td>Basic Pharmacology for Athletic Trainers</td>
<td>2 units</td>
</tr>
</tbody>
</table>
Detailed Course Out-Line

1. **Summer # 1**
   1.1. *ATEP 2 (KIN301) Athletic Training Theory & Ethics*
       A. History of Athletic Training
       B. Code of Ethics
       C. What is an ATC
       D. Certification vs Licensure
       E. Roles and Responsibilities of Health Care Team
       F. Accreditation (Associations)
       G. Employment
       H. Medical Legal Issues
       I. Medical Ethics
       J. Confidentiality Issues
       K. Moral and Ethical Considerations in Keeping Athletes Safe

1.2. *KIN 500 Intro to Scholarly Inquiry*
       A. Statistics (Statistical Interpretations)
       B. Research Types
       C. Research Design
       D. Multimedia (Injury Tracking Software, Microsoft Programs)
       E. Case Study Review

1.3. *KIN 340 Emergency Response*
       A. AED Training
       B. CPR adult and infant (1 and 2 person)
       C. First Responder/Fist Aid Cert
           I. Establishing and Maintaining an Airway
               i. With protective head gear (ie: football helmet)
           II. Bag Valve Mask Use
           III. Pocket Masks Use
       D. Professional Rescue Techniques
           I. CPR
           II. Dressings
           III. Skin Closures
           IV. Cleaning Wounds
           V. Direct and Indirect Pressure to Stop Bleeding
       E. Blood Pressure measurements
       F. Pulse Measurements (Rate and Quality)
       G. Hard Casting and Immobilization Techniques
       H. Cane / Crutches fitting and Instructions
       I. Obtaining a Medical History
       J. Proper Disposal of Biohazardous Waste Material
K. PRICE (Prevention, Ice, Compression, Elevation)
L. Applying Gloves and Removing Gloves Properly
M. Universal Precautions
N. Protective Equipment (Gowns, Eye Wear, TB Masks and Others)
O. Breath Sounds (Conditions...pnea’s)
P. Heart & Bowel Sounds

2. Fall #1

2.1. KIN342 (ATEP3) Upper Extremity Athletic Injuries Evaluation and Diagnosis
   A. Head, Neck Shoulders, Elbows, Wrists Hands and Phalanges
   B. Torso Injuries Included
   C. Recognition
   D. Prevention
   E. Assessment and Evaluation
      I. Special Testing
   F. Pathology of Injury
   G. Taping (preventive and protective)
   H. Functional Bracing
   I. Wraps and Padding
   J. Obtaining a Medical History
      Project: Notebook

2.2. KIN 305 Psychology of Human Movement
   A. Recognition of Psychological problems
   B. Concussions
   C. Psychosocial Interventions
   D. Process of Referral
   E. Verbal Motivation
   F. Visualization
   G. Imagery
   H. Desensitization
   I. Diversity Communication
   J. Burnout of ATC
   K. Conflict with ATC’s
   L. Stress of ATC’s
   M. Psychology of Injury

2.3. KIN 201 Foundations of Kinesiology
   A. Pathology of Injury
   B. Fundamental Movements
   C. Body Planes
   D. Stability vs Mobility
   E. Muscle Contraction Types
F. Muscle
   I. Anatomy
   II. Insertion
   III. Origin
   IV. Action
G. Postural Deviations
H. Identify and Palpitate Anatomical Landmarks
I. Scapulohumeral Rhythm
   Project: Notebook

2.4. BIOL 307 Human Nutrition
   A. Dieting for athletes
      I. Weight gains and Losses
   B. Pre-Participation Meals
   C. Athletic Metabolism (When/Timing to Eat)
   D. Thermoregulation
   E. Fluid Replacement
   F. Vitamins
   G. Minerals
   H. Food Pyramid
   I. Bioenergetics
   J. FDA
   K. New Diets (advertised Diets and What They Really Are)
   L. Chronic vs Acute Diets and the Effects
   M. Nutritional Intake Values
   N. Energy Expenditure Values
   O. Recognize and Classify Body Types
   P. Health Concerns Pertaining to Diet
   Q. Referral Options
   R. Eating Disorders
   S. Disordered Eating
   T. Alcohol, Tobacco and Drugs
   U. Supplements (Herbs and Extracts)
   V. Confidentiality (HIPPA)
   W. Dietary Position Statements (NCAA, NATA, ACSM, etc.)
   Projects:
      Analyze Your Diet Try a Diet
      Create a Nutritional Diet Plan for a Specific Athlete Type

2.5. ATEP 1a Clinical Education I
   A. 200 Hours
3. Spring #1

3.1. KIN 442 (ATEP 4) Lower Extremity Athletic Injuries Evaluation and Diagnosis
   A. Hip, Pelvis, Knees, Ankles, Feet, and Toes
   B. Back/Spine Injuries Included
   C. Recognition
   D. Prevention
   E. Assessment and Evaluation
      I. Special Testing
   F. Pathology of Injury
   G. Taping (Preventive and Protective)
   H. Functional Bracing
   I. Wraps and Padding
   J. Obtaining a Medical History
      **Project**: Notebook

3.2. KIN 599a Culminating Project
   A. Literature Review
   B. Gathering Information for Thesis/Project
      **Project**: Thesis Proposal
      Write 1st Chapter of Thesis

3.3. KIN 550 Seminar in Biomechanics
   A. Injury Prevention
   B. Postural Assessments
   C. Stretching
   D. Neurological Responses (Dermatomes and Myotomes and Reflexes)
   E. Cranial Nerve Testing
   F. Cognitive Function Testing
   G. Spinal Nerve Roots
   H. Cerebellar Functions

3.4. KIN 460 Conditioning for Performance and Health
   A. Strength Training Techniques for athletes
   B. Safety Instruction in the Weight Room
      I. Proper instruction for use of equipment
      II. Proper Spotting techniques
   C. Conditioning Techniques for athletes
   D. Body Composition Measurements (Calipers, Limb length and girth)  
      I. Appropriate formulas associated with each measurement
   E. Prevention of Injury/Pre-Physical Rehabilitation
   F. Height & Weight Measurements
   G. Speed Measurements
   H. Agility Tests
I. Calisthenics
J. Circuit Training
K. Cardiovascular Endurance (Treadmill Max Stress Testing)
L. Respiratory Endurance (Spirometry Max Testing)
M. Muscular Strength/Endurance (Repetition Testing/Max Testing)
N. Flexibility Measurements (Goniometry)
O. Weight Chart Interpretation
P. Project: Create a Strength Training Program for a first Year Athlete

3.5. *ATEP 1b Clinical Rotations II*
A. 200 Hours

4. Summer #2
4.1. *ATEP 1c Clinical Rotations III*
A. 200 Hours
B. PT Clinic (6 ~ 7 hours a Day for 10 Days)
C. Hospital (6 ~ 7 Hours a Day for 10 Days)
D. Diagnostics (6 ~ 7 Hours a Day for 10 Days)

4.2. *KIN 599 b Culminating Project*
A. Gathering Information/Data for Thesis/Project

5. Fall #2
5.1. *ATEP 6 Rehabilitation/Therapy Exercise Movements*
A. Healing Process
B. Rehabilitation
C. Isometric Testing
D. Isokinetic Testing
E. Isotonic Testing
F. Assistive Range of Motion
G. Resistive Range of Motion
H. Active Range of Motion
I. Manual Muscle Testing
J. Joint Mobilizations
K. Joint Glides
L. Fartlek Training
M. Reaction Drills
N. Polymetrics Exercises
O. Traction/Distraction
P. PNF Patterns
Q. Basic Documentation (To be Covered in Modalities Class Depth)
R. Therapeutic Exercise Equipment
I. Aquatic
S. UBE
T. Bike
U. Physioballs
V. Trampoline
W. Stairs
X. Incline Board
Y. Boxes
Z. Weight balls
AA. Treadmill
BB. Elliptical
CC. Bands
DD. Slide Board
EE. Balance boards/balls
FF. Return to Play Decision Making
GG. Functional Testing
HH. Activity Specific Testing

5.2. KIN 599c Culminating Project
A. Writing Your Thesis

5.3. ATEP 7 General Medical Conditions and the Disease Process
A. Snellen Eye Chart (Vision Conditions)
B. Temperatures (Oral, Axillary, Tympanic)
C. Obtaining a Medical History
   I. Chief Complaint
   II. Surgical History
   III. Medical History
   IV. Social/Family History
   V. Medication History (Current Medications)
   VI. Face Injuries
D. Ear (Injuries, Conditions and Symptoms)
E. Eye (Injuries, Conditions and Symptoms)
F. Teeth/ Mouth (Injuries, Conditions and Symptoms)
G. Environmental Injury/Illnesses (Evaluations and Recognition)
H. Skin Conditions/Injuries (Evaluations and Recognition)
I. EENT Conditions (Evaluations and Recognition)
J. Respiratory Conditions (Evaluations and Recognition)
K. Cardiovascular (Evaluations and Recognition)
L. Endocrine (Evaluations and Recognition)
M. Gastrointestinal Tract (Evaluations and Recognition)
N. Eating Disorders (Evaluations and Recognition)
O. Sexually Transmitted Diseases (Evaluations and Recognition)
P. Gynecological Disorders (Evaluations and Recognition)
Q. Viral Syndromes (Evaluations and Recognition)
R. Urinary Disorders (Evaluations and Recognition)
S. Neurological Disorders (Evaluations and Recognition)
T. Blood and Lymph System Diseases (Evaluations and Recognition)
U. Special Topics (Diabetes, Cancer, Arthritis)
V. Abbreviations and Symbols
W. Referral Options
X. Confidentiality (HIPPA)

Project: Notebook

5.4. KIN 560 Advanced Physiology of Exercise
A. Metabolic Training and Adaptations
B. Cardiovascular Systems (Treadmill Testing)
   I. Basic Anatomy and Physiology
C. Respiratory Systems (Spirometry and Pulmonary Function Testing)
   I. Basic Anatomy and Physiology
D. Neuromuscular-Skeletal Systems
   I. Basic Anatomy and Physiology
   II. Skeletal Adaptations to Exercise
   III. Muscular Adaptations to Exercise
   IV. Muscular Fatigue
   V. Muscular Soreness
   VI. Muscular Training Principals
   VII. Stretching (Physiology: Before and After Exercise)
   VIII. Flexibility
E. Nervous System During Exercise
F. Endocrine System During Exercise
G. Hormonal Response During Exercise
H. Exercise Response
   I. Cellular Respiration (Anaerobic vs Aerobic)
J. Measuring Metabolism
K. Male vs Female Responses
L. Training Principals
   I. Aerobic Sports vs Anaerobic Sports

5.5. ATEP 1d Clinical Rotations IV
A. 200 Hours

6. Spring # 2

6.1. ATEP 5 Modality Theory and Practice
A. Chronic vs Acute Injury
B. Chronic vs Acute Pain
C. Cryotherapy
D. Thermotherapy
E. Electrotherapy
F. Electrical Stimulation
G. Ultrasound
H. Phonophoresis
I. Iontophoresis
J. Lasers
K. Traction/Distraction
L. Intermittent Compression
M. Massage
N. Myofascial Release
O. Documentation
P. Standardized Record Keeping (HOPS, SOAP,HIPS)
Q. Progress Notes

Projects:
- Specific Injury and Athlete, Create an Injury, Mechanism, Rehab, Modalities, Return to Play Tests, Creativity of Athlete Compliance, Variety of Exercises,
- PPT Presentation to Class (10min)

6.2. ATEP 9 Basic Pharmacology for Athletic Trainers
A. PDR use
B. Prescription vs Over the Counter
C. Side Effects
D. Pharmacokinetics vs Pharmacodynamics
E. Banned Substances (USOC, NCAA Etc..)
   I. Steroids
      II. Long-Term vs Short-Term Effects
F. Warnings
G. Indications for Use
H. Route of Administration
I. Drug Classifications
   I. Anti-Inflammatories
   II. Analgesics
   III. Respiratory
   IV. Antibiotics
   V. Anaphylaxis
   VI. Gastrointestinal
   VII. Anti-Hypertensives
   VIII. Topical
   IX. Anti-Psychotics
   X. Bronchodilators
   XI. Epinephrine
J. Interactions
K. Contraindications
L. Generic vs Brand Name
M. Dosing
N. Labeling (Lot Number, Dosage, Amount, Manufacturer, Exp. Date)
O. Legal Aspects (dispensing vs Administering)
P. Documentation
Q. Age limitations
R. Poison Control (Essential Information and Activation)

**Project:** Notebook

### 6.3. *ATEP 8 Health Care Administration*

A. Student Organizations and Clubs
B. Legal Issues
C. Physical Examinations Pre-participation Physicals
D. Permission to Give Medical Care
E. Recruiting Physicals (Rules and Guidelines)
F. Coaching Methods Which May be Risk Factors For The Athletes
G. Documents for Administration (Injury, Accidents, Facilities, Etc...)
H. Medical Records
I. Risk Management (Hazards)
J. Professionalism (Dress Codes)
K. Professional Development and Responsibilities
L. Resume Writing
M. Human Resources, Acquisition, Development and Termination Implications of these Actions as a Manager
N. Confidentiality
O. Communication with the Health Care Team
P. Rules and Regulations of the NCAA For Protective Equipment
Q. Insurance Policies (Catastrophic, Private, HMO, PPO Etc...)
R. Record Keeping (Filing)
S. Electronic Medical Records (EMR)
T. Referral Processes
U. Athletic Training Room Design, Evacuation, and Organization
V. Sexual Harassment
W. Polices and Procedures (Communication, Emergency Procedures)
X. Creating a Police and Procedure Manual
Y. Practice and Game Coverage
Z. Public/Media Relations
AA. Budgeting
BB. OSHA Compliance

**Projects:** Budget, Training Room Design, Resume Building
6.4. ATEP 1e Clinical Rotations V
I. 200 Hours

7. Summer # 3 (Optional)
   Independent Study (if needed for completion of thesis)

* Clinical Rotations will be comprised of experiences at the college. Concentrations will be in several different combinations of, Risk of Upper Extremity Injury, Risk of Lower Extremity Injury, Equipment Intensive, Indoor Sport, Outdoor Sport, Male Sport, Female Sport, Aquatic Sport, High Spectator, and Low Spectator Experiences. Each Student will have exposure to each of these experiences in some combination during their Clinical Rotations, I, II, IV, V. Clinical Rotation III is during the second summer session and will comprise of Physical Therapy Clinic Time, Hospital Time, and Diagnostic Time. Each Clinical Rotation will be 200 hours in length.
Sample Curriculum Content

Sample Knee Outline

Knee

Skeletal Structure

1. Femur
   Medial Femoral Condyle
   Lateral Femoral Condyle

2. Tibia
   Tibial plateau

3. Fibula

4. Patella
   In the quadriceps tendon

Soft Tissues

1. Menisci
   Lateral Meniscus
   Medial Meniscus

2. Ligaments
   Cruciate Ligaments
   Anterior Cruciate Ligament (ACL)
   Posterior Cruciate Ligament (PCL)
3. Collateral Ligaments

   Medial Collateral Ligament (MCL)
   Lateral Collateral Ligament (LCL)

Muscles

1. Quadriceps Group
   Rectus Femoris
   Vastus Medialis
   Vastus Intermedialis
   Vastus Lateralis

2. Hamstrings Group
   Biceps Femoris
   Semitendinosus
   Semimembranosus

3. Other Misc Muscles
   Gracilis
   Sartorius
   Popliteus
   Gastrocnemius
   Plantaris

4. Pes Anserine Group
   Sartorius
   Gracilis
   Semitendinosus
5. Iliotibial Band (IT Band)

   Tensor Facia Latae

   Lateral Epicondyle

Muscle Movements

1. Knee Flexion - Sciatic Nerve (L5-S1)

   Hamstring Group

   Gracilis

   Gastrocnemius

   Popliteus

   Plantaris

2. Knee Extension - Femoral Nerve (L2-L4)

   Quadriceps Group

3. External Tibial Rotation

   Biceps Femoris

4. Internal Tibial Rotation

   Popliteus

   Semitendinosus

   Semimembranosus

   Sartorius

   Gracilis


Movements

1. Knee Flexion - 135°
2. Knee Extension - 0°

3. Internal Rotation - 10°

4. External Rotation - 10°

Knee Injuries

1. MCL Sprains - 3 grades
2. LCL Sprains
3. ACL Sprains
4. PCL Sprains
5. Unhappy Triad
6. Meniscus Lesions
7. Joint Contusions
8. Bursitis
9. Loose Bodies in the Knee
10. IT Band Syndrome
11. Patella Subluxation/Dislocation
12. Chonromalacia
13. Patellar Tendonitis
   - Jumper’s Knee
14. Osgood-Slatter Disease
15. Patella Fracture
16. Patella Alta
17. Patella Baja
18. Q-Angle


Stress Tests

1. Valgus Test
   - Full Knee Extension = ACL & MCL
   - 30° Knee Flexion = MCL

2. Varus Test
   - Full Knee Extension = ACL & LCL

30° Knee Flexion = LCL

3. Lachman’s Test - ACL

4. Anterior Drawer Sign - ACL & Anteriomedial & Anteriolateral Instability

5. Slocum Test - Anteriomedial Instability

6. Posterior Drawer Sign - PCL & Posterior Instability

7. Godfrey’s Test - PCL & Posterior Instability

8. Recurvatum Test - Posteriorlateral Instability

9. Noble’s Test – IT Band Inflammation

10. Ober’s Test – IT Band Inflammation

Special Tests

1. Patellar Ballotment Test - Joint Effusion

2. Bounce Home Test - Menisci

3. McMurray’s Test - Menisci

4. Apley’s Compression/Distraction Test - Menisci
5. Q-Angle Measurement - Predisposition Patellar Tracking

6. Apprehension Test - Patellar Subluxation Laxity

7. Patellar Compression/Grind Test - Patellar Chondromalacia

8. Plica Test - Plica & Patellar Chondromalacia

9. Sweep Test – Joint Effusion

Taping

1. ACL and Collateral Ligament Taping

2. Knee Hyper Extension Taping
Sample of Anatomy Content

Knee Anatomy

Bones

- Patellar Tendon/Ligament

Ligaments

- Anterior Cruciate Ligament
- Posterior Cruciate Ligament
- Lateral Collateral Ligament
- Medial Collateral Ligament
- Meniscus Limited and Medial

Musculature

- Quadriceps Group
  - Rectus
  - Sartorius
  - Semimembranosus
  - Semitendinosus

Musculature

- Hamstring Group
  - Biceps Femoris
  - Long Head
  - Short Head
  - Semimembranosus
  - Semitendinosus

Other Misc. Muscles

- Gracilis
- Sartorius
- Popliteus
- Gastrocnemius
- Plantraris
<table>
<thead>
<tr>
<th>Injury</th>
<th>Etiology</th>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medial Collateral Ligament (MCL)</td>
<td>Valgus force, Outward twist</td>
<td>Grade I&lt;br&gt;Fiber tearing/stretching&lt;br&gt;Stable valgus stress test&lt;br&gt;Slight or no joint swelling&lt;br&gt;Stiffness and joint pain laterally&lt;br&gt;Good ROM&lt;br&gt;Grade II&lt;br&gt;Partial tear of the MCL&lt;br&gt;Laxity in valgus stress test&lt;br&gt;Slight swelling&lt;br&gt;Decreased ROM&lt;br&gt;Pain medially&lt;br&gt;Grade III&lt;br&gt;Complete Tear of the MCL&lt;br&gt;No medial stability&lt;br&gt;Moderate swelling&lt;br&gt;Immediate pain followed by aching&lt;br&gt;Loss of motion&lt;br&gt;Hamstring guarding&lt;br&gt;Positive valgus stress test</td>
</tr>
<tr>
<td>Lateral Collateral Ligament (LCL)</td>
<td>Varus Force, Inward twist</td>
<td>Pain and swelling over the LCL&lt;br&gt;Joint laxity&lt;br&gt;Positive Varus stress test&lt;br&gt;All grades are the same as in the MCL but signs and symptoms are on the lateral side of the knee</td>
</tr>
<tr>
<td>Anterior Cruciate Ligament (ACL)</td>
<td>Direct blow, Plant and twist, Hyperextension, Q-angle is a predisposing factor</td>
<td>Pop is heard&lt;br&gt;Severe pain&lt;br&gt;Decreased ROM&lt;br&gt;Rapid swelling in the joint&lt;br&gt;Discoloration&lt;br&gt;Positive anterior drawer test&lt;br&gt;Positive Lachman’s test</td>
</tr>
<tr>
<td>Unhappy Triade</td>
<td>Plant and twist</td>
<td>ACL, MCL, Meniscus</td>
</tr>
<tr>
<td>Posterior Cruciate Ligament (PCL) “dashboard injury”</td>
<td>Most at risk during 90 degrees of knee flexion, Fall on bent knee</td>
<td>Feel a pop in the back of the knee&lt;br&gt;Tenderness&lt;br&gt;Slight swelling in the posterior knee&lt;br&gt;Laxity</td>
</tr>
<tr>
<td>Condition</td>
<td>Description</td>
<td>Symptoms</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Meniscus Lesions</td>
<td>Medial Meniscus most common Plant and twist MOI</td>
<td>Join line pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intermittent locking or giving way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain with squatting</td>
</tr>
<tr>
<td>Joint Contusions</td>
<td>Blow to the muscle crossing the joint (Vastus Medialis)</td>
<td>Present as knee sprain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Severe pain, loss of movement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute inflammation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discoloration</td>
</tr>
<tr>
<td>Bursitis</td>
<td>Acute, chronic or recurrent swelling</td>
<td>Prepatellar = localized swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>that is ballotable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swelling in the popliteal fossa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(possibly Baker's Cyst)</td>
</tr>
<tr>
<td>Loose Bodies in the Knee</td>
<td>Result of repeated trauma</td>
<td>May become lodged, causing locking</td>
</tr>
<tr>
<td></td>
<td>May be meniscal fragments, cruciate ligament fragments, or synovial tissue</td>
<td>or popping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Instability</td>
</tr>
<tr>
<td>Iliotibial Band Syndrome (IT Band)</td>
<td>Runners or cyclists Malalignment of foot or lower leg</td>
<td>Tenderness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mild Swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warmth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain increases with activity</td>
</tr>
<tr>
<td>Patella Subluxation / Dislocation</td>
<td>Valgus force to the knee Quad muscle pulls patella out of alignment</td>
<td>Pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decreased ROM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Point tenderness</td>
</tr>
<tr>
<td>Chonromalacia Patella</td>
<td>Softening or deterioration of the dorsal surface patella</td>
<td>Pain with movement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grinding is heard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Positive Clark's Test</td>
</tr>
<tr>
<td>Patellar Tendonitis (jumper's knee)</td>
<td>Jumping or kicking Strain on the patellar tendon Repetitive motions</td>
<td>Pain and tenderness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 phases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pain after activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pain during and after activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>prolonged pain</td>
</tr>
<tr>
<td>Osgood-Schlatter Disease</td>
<td>Apophysitis on the tibial tubercle</td>
<td>Swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Impaired circulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pain with kneeling, jumping, running</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Point tenderness</td>
</tr>
<tr>
<td>Patellar Fracture</td>
<td>Direct trauma</td>
<td>Joint swelling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discoloration</td>
</tr>
<tr>
<td>Patella Alta</td>
<td>Length patellar tendon is shorter than the height of the patella</td>
<td>Patella sits superior position</td>
</tr>
<tr>
<td>Condition</td>
<td>Description</td>
<td>Effect</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Patella Baja</td>
<td>Length patellar tendon is longer than the height of the patella</td>
<td>Patella sits inferior position</td>
</tr>
<tr>
<td>Q-Angle</td>
<td>Line bisects the patella relative to the ASIS and the Tibial Tubercle</td>
<td>Improper patella tracking</td>
</tr>
<tr>
<td></td>
<td>Normal 18 degrees for women</td>
<td>Leads to many chronic conditions</td>
</tr>
<tr>
<td></td>
<td>Normal 13 degrees for males</td>
<td></td>
</tr>
<tr>
<td>Baker's Cyst</td>
<td>Herniation of the synovial tissue through a weakening in the posterior capsule wall</td>
<td>Swelling in the posterior knee pain in the calf and posterior knee</td>
</tr>
</tbody>
</table>
Sample of Injury Content

Knee Injuries

MCL Tear

LCL Tear

ACL Tear

Unhappy Triad

- ACL
- MCL
- Meniscus

PCL Tear

ACL / PCL Injuries

Meniscal Lesions

Joint Contusion

Bursitis

Loose Bodies in the Knee

IT Band Syndrome

Patella Subluxation/Dislocation

Chondromalacia

Patellar Tendonitis
Sample of Knee Evaluation for Student Reference

Knee Evaluation

History

_____ Past History
_____ Present History

Inspection

_____ Swelling / Discoloration / Deformity

Palpation

Bony:

_____ Tibia – Plateau, Tuberosity, Shaft (Fractures)
_____ Femur – Condyles, Shaft (Fractures)
_____ Fibula – Head, Shaft (Fractures)
_____ Patella – Borders, Body (Fractures)

Soft Tissue:

_____ Medial Collateral Ligament (Sprain)
_____ Lateral Collateral Ligament (Sprain)
_____ Menisci at Joint Line (Tear)
_____ Patellar Tendon (Rupture / Tendonitis)
_____ Popliteal Fossa (Cyst / Tendonitis)
_____ Quadriceps – Rectus Femoris, Vastus Medialis, Vastus Lateralis (Strain)
_____ Pes Anserine Group – Sartorius, Gracilis, Semitendinous (Tendonitis)
_____ Hamstrings – Biceps Femoris, Semimebranous, Semitendinous (Strain)
_____ Iliotibial tract (Tendonitis)
Stress Tests

- **Valgus Stress/Abduction** - Full Extension = ACL & MCL, 30° Flexion = MCL
- **Varus Stress / Adduction** - Full Extension = ACL & LCL, 30° Flexion = LCL
- **Lachman’s Test** (ACL)
- **Anterior Drawer’s Test** – (ACL, Anterio-medial & Lateral Instability)
- **Slocum’s Test** – (Anterio-medial Instability)
- **Posterior Drawer Test** – (PCL, Posterior Instability)
- **Godfrey’s Test** – (Posterior Instability)
- **Recurvatum Test** – (Posterior lateral Instability)
- **Noble’s Test** (IT Band Inflammation)
- **Ober’s Test** (IT Band Inflammation)

Special Tests

- **Patellar Ballotment Test** - (Joint Effusion)
- **Bounce Home Test** - (Menisci)
- **McMurray’s Test** - (Menisci)
- **Apley’s Compression & Distraction Test** - (Menisci)
- **Q-Angle Measurement** – (Predisposition to patellar tracking problems)
- **Apprehension Test** – (Patellar Subluxation / Dislocations)
- **Patellar Compression / Grind Test** – (Patellar Chondromalacia)
- **Plica Test** (Patellar Chondromalacia & Synovial Pilcas)
- **Sweep Test**
Range of Motion

- Flexion - 135° PROM AROM
- Extension - 0° PROM AROM
- Internal Rotation - 10° PROM AROM
- External Rotation - 10° PROM AROM

Muscular Strength Test (RROM)

- Flexion – Hamstrings (Sciatic Nerve)
- Extension – Quadriceps (Femoral Nerve)

Neurological Tests

Motor:
- L2 – L4 Knee Extension & Hop Adduction
- L4 Dorsi Flexion & Inversion of the ankle
- L5 Toe Extension
- L5 – S1 Knee Flexion
- S1 Ankle Eversion
- S1-S2 Ankle Plantar Flexion

Sensory:
- L3 Medial Knee
- L4 Medial Surface of Foot
- L5 Dorsum of Foot
- S1 Lateral Surface of foot
- S2 Medial Gastrocnemius

Reflex:
- L4 Patellar Tendon
- S1 Achilles Tendon
Blood Flow Tests

_____ Popliteal Artery Pulse       _____ Recapillarization Test

_____ Dorsal Pedal Artery Pulse
Sample of Knee Evaluation Content

**Knee Evaluation**

**Past History**
- Major complaint?
- How long has it been bothering?
- What did it start?
- Insomnia?
- Knee pain or stiffness?
- Burning or any change?
- Crepitus?
- Pain?
- Type of pain?
- Radiation?
- Tenderness and even swelling?
- Was treatment used at home?
- Had any surgery or operation?
- In the past?
- Is anything better or worse?
- What happened immediately before it started?
- Family history?
- Is there a pregnancy in the past?

**Present History**
- Past history?
- Medications at injury (yes/no)?
- How long have you been injured?
- Pain:
- Tenderness at rest?
- Pain in any start?
- Knee pain or swelling?
- Pain before injury?
- Could it have been a collateral?
- Knee injury?
- Tenderness?
- Crepitus?
- Pain?
- Type of pain?

**Inspection**
- Walking
- Squatting
- Variations
- Observation
- Deformity
- Leg alignment
- Hyperextension

**Bony Palpation**
- Femoral
- Patella
- Patellar

**Soft Tissue**
- Patellar Fossa
- Quadriceps
- Vastus lateralis
- Vastus intermedius
- Pes Anserine
- Semimembranous
- Semitendinosus
- Iliotibial Tract

**Quadriceps**

**Hamstrings**

**Pes Anserine**

**Iliotibial Band (IT Band)**

**Stress Tests**
- Valgus Stress Test
- Abduction (MCL)
- Varus Stress Test
- Adduction (LCL)
- Lachman's (ACL)
- Anterior Drawer (ACL)
- Stress Test
- Mclaren's (IT Band)
- Chur's (IT Band)

**Valgus Test**
- Positive = Pain, laxity
- Implications = MCL, ACL

**Varus Test**
- Positive = Pain, laxity
- Implications = LCL, ACL

**Lachman's ACL**
- Positive = Pain, laxity
- Implications = ACL.
Anterior Drawer Test
- Positive = Pain
- Laxity
- Implications = ACL

Slocum Test
- Positive = Increased movement of laxity
- Implications = ACL, PCL

Posterior Drawer Sign
- Positive = Pain, increased movement of laxity
- Implications = PCL

Godfrey's Test (Gravity Drawer Test)
- Positive = Sag in the involved knee
- Implications = PCL

Recurvatum Test
- Positive = Hyperextension
- Implications = PCL, ACL

Noble Test
- Positive = Pain under thumb at the IT band attachment site
- Implications = Inflammation of the IT-band

Ober's Test
- Positive = Pain under thumb at the IT band attachment site
- Implications = Inflammation of the IT-band

Special Tests
- Patellar Ballotment Test
- Apley's Compression/Grind Test
- Q-Angle Measurement
- Apprehension Test
- McMurrays Test
- PCL Test
- Patellar Compression/Grind Test
- Patellar Tendinitis

Bounce Home Test
- Positive = pain, hyperextension
- Implications = Meniscus

McMurray's Test
- Positive = Pain, locking, catching, clicking, DJIL
- Implications = Meniscus tear

Apley's Compression/Distraction
- Positive = Pain, Locking, Clicking
- Implications = Meniscus Tear

Q-Angle Measurement
- ASIS to Mid-Patella
- Angle of Tibial Torsion
- Female < 18 degrees
- Male < 15 degrees

Apprehension Test
- Positive = Pain or apprehension
- Implications = Delaminated/Sublaminar patella, Chondromalacia

Patellar Compression/Grind Test
- Positive = pain, capitulotuberosity, instability to hold quadriceps contraction
- Implications = Chondromalacia
Plica Test
- Feeling of the Plica
- Or mimicking of symptoms
- Implications = Symptomatic Plica

Sweep Test
- Implications = Inflammation in the Joint Capsule
- Positive = Restriction of motion in the joint capsule

ROM
- Flexion – 135 degrees
- Extension – 0 degrees
- Hyperextension – negative degrees
- Internal Rotation – 10 degrees
- External Rotation – 10 degrees

Flexion

Extension

Hyperextension

Internal/External Rotation

Muscle Strength
- Passive
- Active
- Resistant
- Knee Flexion
- - hamstrings
- - knee hinge
- Knee Extension
- Quadriceps
- Patellar tests

Motor
- L2-L3-L4 Knee extension & Hip adduction
- L4: Dorsal Flexion & Inversion of ankle
- L5: Toe Extension & Hip Abduction
- L5-S1: Ankle eversion
- S1-S2: Ankle plantar flexion

Sensory
- L3: Medial knee
- L4: Medial surface of foot
- L5: Dorsum – web of toes
- S1: Lateral surface of foot
- S2: Medial Gastrocnemius

Reflexes
- L4: Patellar Tendon
- S1: Achilles Tendon

Blood Flow Tests
- Popliteal Artery Pulse
- Dorsal Pedal Artery Pulse
- Reciprocation Test
Sample of Practice Sheet for Injury Evaluations

Athlete’s Name ____________________________  Today’s Date __________

Injured Body Part __________________________  Date Injury Occurred __________

Location (where) Injury Occurred __________________________

Practice  Game/Competition  Off-Season  Other __________________________

Past History ____________________________________________

Present History / How the injury occurred ____________________________________________

Inspection/Observations __________________________

Palpation ____________________________________________

PROM ____________________________________________

AROM ____________________________________________

RROM ____________________________________________

Special Tests ____________________________________________

Injury Impression (prognosis) __________________________

Plan ____________________________________________

Referral ____________________________  Physician ____________________________

ATS ____________________________  ATC ____________________________

Printed ATS ____________________________  Printed ATC ____________________________

Subjective ____________________________________________

Objective ____________________________________________

Assessment ____________________________________________

Plan ____________________________________________
## Treatments

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of Day</th>
<th>Treatment / Rehab Completed</th>
<th>Duration of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sample Clinical Skills Sheet

### Clinical Proficiencies

<table>
<thead>
<tr>
<th>Injury Specific Proficiencies</th>
<th>Peer Evaluation #1</th>
<th>Peer Evaluation #2</th>
<th>ATC Evaluation</th>
<th>Course</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain and Evaluate Sprains</td>
<td>Date</td>
<td>Date</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACL</td>
<td>Initials</td>
<td>Initials</td>
<td>Initials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCL</td>
<td>Initials</td>
<td>Initials</td>
<td>Initials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unhappy Triad</td>
<td>Eval DCP PFE</td>
<td>Eval DCP PFE</td>
<td>Eval DCP PFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meniscal Lesions</td>
<td>Initials</td>
<td>Initials</td>
<td>Initials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint Contusions</td>
<td>Date</td>
<td>Date</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bursitis</td>
<td>Initials</td>
<td>Initials</td>
<td>Initials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loose Bodies in the Knee</td>
<td>Date</td>
<td>Date</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patella Subluxation or Dislocation</td>
<td>Initials</td>
<td>Initials</td>
<td>Initials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Osgood-Slatter Disease</td>
<td>Date</td>
<td>Date</td>
<td>Date</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DCP = Demonstrates Clinical Proficiency  
PFE = Pending Further Evaluation
Sample Clinical Skills Integration Sheet

### Clinical Proficiencies

<table>
<thead>
<tr>
<th>Code</th>
<th>Clinical Proficiency for the Lower Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select, apply, evaluate, and modify appropriate standard protective equipment and other custom devices for the patient in order to prevent and/or minimize the risk of injury to the head, torso, spine, and extremities for safe participation in sport and/or physical activity. Effective lines of communication shall be established to elicit and convey information about the patient’s situation and the importance of protective devices to prevent and/or minimize injury.</td>
</tr>
</tbody>
</table>

#### Peer Evaluations

<table>
<thead>
<tr>
<th>Peer Evaluation</th>
<th>Demonstrates Clinical Proficiency</th>
<th>Initial Date</th>
<th>Does Not Demonstrate Clinical Proficiency</th>
<th>Initial Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Evaluation</td>
<td>Demonstrates Clinical Proficiency</td>
<td>Initial Date</td>
<td>Does Not Demonstrate Clinical Proficiency</td>
<td>Initial Date</td>
<td>Comments</td>
</tr>
</tbody>
</table>

#### ATC Evaluations

<table>
<thead>
<tr>
<th>ATC Evaluation</th>
<th>Demonstrates Clinical Proficiency</th>
<th>Initial Date</th>
<th>Does Not Demonstrate Clinical Proficiency</th>
<th>Initial Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATC Evaluation</td>
<td>Demonstrates Clinical Proficiency</td>
<td>Initial Date</td>
<td>Does Not Demonstrate Clinical Proficiency</td>
<td>Initial Date</td>
<td>Comments</td>
</tr>
</tbody>
</table>

### Additional Comments


Course Descriptions

BIOL 307 Human Nutrition 3 units
Lecture, 3 hours. Concepts of modern nutrition, including some discussion of principal nutritional problems and modern food processing methods. Prerequisites: BIOL 110, 115 or BIOL 121/122 and one course in beginning chemistry

KIN 201 Foundations of Kinesiology 3 units
This course is designed to orient students to kinesiology as a field of study. Students will be exposed to multiple disciplines within kinesiology. By engaging in discussions, activities, and field observations, students will explore and become prepared to select a career path within the field

KIN 305 Psychology of Human Movement 4 units
Introduction to psychological factors influencing learning and performing motor skills and the psycho-social influences of sport, exercise, and physical activity on the developing individual. Emphasis will be on the application of current motor learning, sport, and exercise psychology theories on such topics as learning, motivation, goal setting, stress, anxiety, group dynamics, leadership, moral development, and exercise adherence. Prerequisite: ENGL 101, WEPT, Upper Division standing, and consent of instructor for non-Kinesiology majors.

KIN 460 Conditioning for Performance and Health 3 units
A review of methods for the conditioning of a broad range of people from exercising adults through competitive athletes. Emphasis during the first half of the semester will be on topics related to adult fitness, including cardiorespiratory fitness, resistive training, flexibility, weight management, and exercise for special populations. During the second half of the semester topics related to athletes will include endurance training, training for strength and power, nutritional
considerations for athletes, and the use of various putative ergogenic aids. Prerequisite: KIN 360.

KIN 500 Introduction to Scholarly Inquiry in Kinesiology 3 units

This course is designed to prepare graduate students in Kinesiology to formulate and carry out a research project as part of his/her M.S. degree. Both theoretical and practical aspects of research will be included: examination of research paradigms, critical review of literature, effective design of a study, concepts of statistical and qualitative analysis of data, and the use of the library and computers as research tools. Prerequisite: KIN 330A or a course in descriptive statistics; an introductory computer course; and graduate standing.

Kin 550 Seminar in Biomechanics 3 units

This course uses topical published research articles to discuss the quantitative and quantitative analysis of human movement and their application for Kinesiology professionals. Topics will vary; however, the underlying objective will be to understand aspects of the research presented in these articles including appropriateness of research design, methodology, statistical methods, analysis techniques, and limitations of studies. Prerequisite: KIN 350 or equivalent

KIN 560 Advanced Physiology of Exercise 3 units

This course will center around the presentation and discussion of topics related to the application of exercise physiology to school, athletic, and adult fitness settings. Topics will include metabolism and nutrition as it pertains to exercise, the muscular system and resistive training, body composition and weight loss, the cardiovascular system as it relates to endurance training and cardiac rehabilitation, and exercise in extreme environmental conditions, and commonly used ergogenic aids. Prerequisite: KIN 360 or equivalent.

KIN 578 Project Continuation (1-3 units)

Designed for students working on their thesis or master’s project but who have otherwise
completed all graduate coursework toward their degree. This course cannot be applied toward the minimum number of units needed for completion of the master’s degree. **Prerequisite:** permission of the graduate coordinator. Cr/NC only.

**KIN 599 (a,b,c) Culminating Project 3 units**

KIN 599 (a,b,c) Culminating Project is a scholarly investigation based on the students concentration area. Students will complete one of the following: project, thesis, scholarly article, clinical project, or business/curriculum plan. **Prerequisite:** KIN ATEP 1(a-b) and an authorized Advancement to Candidacy form.

**ATEP 1 (a-e) Clinical Education I-V 2-3 units**

Non-classroom experiences in activities related to Athletic Training, under conditions determined by the appropriate faculty member. ATEP 1d Represents advanced practicum work involving increased independence and responsibility. Enrollment is limited to nine units maximum of ATEP 1 (a, b, c, d, & e)

**ATEP 1 a : Clinical Education I (2)**

A clinical education course in the field of athletic training. It will incorporate an experiential learning environment designed to prepare students for a career in athletic training. Basic skills are introduced within the daily operations of the athletic training room and in the care of athletes. Criteria for progression must be met before enrolling in subsequent clinical education courses. **Prerequisite:** admission to the athletic training education program, or permission of the instructor.

**ATEP 1 b : Clinical Education II (2)**

A clinical education course in the field of athletic training. It will incorporate an experiential learning environment designed to prepare students for a career in athletic training. Basic skills
are introduced within the daily operations of the athletic training room and in the care of athletes. Criteria for progression must be met before enrolling in subsequent clinical education courses. Prerequisite: admission to the athletic training education program, or permission of the instructor. Prerequisite: ATEP 1a.

ATEP 1c: Clinical Education I (2)

A clinical education course in the field of athletic training. It will incorporate an experiential learning environment designed to prepare students for a career in athletic training. Advanced skills are introduced within the daily operations of the athletic training room and in the care of the athletes. Criteria for progression must be met before enrolling in subsequent practicum course. Prerequisite: admission to the athletic training education program, or permission of the instructor. Prerequisite: ATEP 1b.

ATEP 1d: Clinical Education I (2)

A clinical education course in the field of athletic training. It will incorporate an experiential learning environment designed to prepare students for a career in athletic training. The focus of this course is mastery of all entry-level skills encountered within the daily operations of the athletic training room and in the care of the athletes. Prerequisite: admission to the athletic training clinical education program, or permission of the instructor. Prerequisite: ATEP 1c.

ATEP 1e: Clinical Education I (2)

A clinical education course in the field of athletic training. It will incorporate an experiential learning environment designed to prepare students for a career in athletic training. The focus of this course is mastery of all entry-level skills encountered within the daily operations of the athletic training room and in the care of the athletes. Students will go through final preparations for the NATABOC examination. Prerequisite: admission to the athletic training clinical
education program, or permission of the instructor. Prerequisite: ATEP 1d

ATEP 2 (KIN301) Athletic Training Theory and Ethics 4 units

This course provides an overview of the field of athletic training, its organization, and the responsibilities of a certified athletic trainer (ATC) as part of the sports medicine team. Instruction will emphasize prevention, recognition, and immediate care of injuries and illnesses associated with physical activity. This course will also include an introduction to significant historical and philosophical considerations in the development of human movement. Contemporary philosophical issues as well as active physical participation with an experiential emphasis will be studied. Discussions including topics of health care ethics, HIPPA, and confidentially will be included. Prerequisite: ENGL 101, upper-division standing, and consent of instructor for non-kinesiology majors.

ATEP 3 (KIN 342) Upper Extremity Injuries, Evaluation and Diagnosis 3 units

This course presents an in-depth study of musculoskeletal assessment of the upper extremity, cervical spine, head and face for the purpose of identifying (a) common acquired or congenital risk factors that would predispose an individual to injury and/or (b) musculoskeletal injury common to athletics or physical activity. Students will receive instruction in obtaining a medical history, performing a visual observation, palpating bones and soft tissues, and performing appropriate special tests for injuries and conditions of the shoulder, upper arm, elbow, forearm, wrist, hand, fingers, thumb, cervical spine, head, and face. This course is directed toward students pursuing athletic training and/or physical therapy professions. Prerequisite: admission to the athletic training clinical education program, or permission of the instructor. Prerequisite: BIOL 220.

ATEP 4 (KIN 442) Lower Extremity Injuries, Evaluation and Diagnosis 3 units
This course presents an in-depth study of musculoskeletal assessment of the lower extremity, thoracic and lumbar spine for the purpose of identifying (a) common acquired or congenital risk factors that would predispose an individual to injury and/or (b) musculoskeletal injury common to athletics or physical activity. Students will receive instruction in obtaining a medical history, performing a visual observation, palpating bones and soft tissues, and performing appropriate special tests for injuries and conditions of the foot, ankle, lower leg, knee, thigh, hip, pelvis, lumbar and thoracic spine. This course is directed toward students pursuing athletic training and/or physical therapy professions. **Prerequisite: admission to the athletic training clinical education program, or permission of the instructor. Prerequisite: BIOL 220.**

### ATEP 5 Modality Theory and Practice 4 units

A lecture and laboratory experience designed to expose the student to the theory, principles, techniques and application of therapeutic modalities pertaining to the treatment of athletic or activity related injuries. Included will be discussions of the physiological effects, indications, contra indications, dosage and maintenance of each modality. **Prerequisite: admission to the athletic training clinical education program, or permission of the instructor. Prerequisite: BIOL 220 & BIOL 224**

### ATEP 6 Rehabilitation/Therapy Exercise Movements 4 units

An application of the theory and principles associated with therapeutic exercise and the application of various rehabilitation techniques and procedures during the course of an athlete’s rehabilitation to attain normal range of motion, strength, flexibility, and endurance. **Prerequisite: admission to the athletic training clinical education program, or permission of the instructor. Prerequisite: KIN 350 & KIN 550**
ATEP 7 General Medical Conditions, Diseases Process, and Pharmacology 4 units

An in-depth exploration of physical, mental, and social health with specific emphasis on recognizing the signs, symptoms, and predisposing conditions associated with the progression of specific illnesses and diseases as they relate to the physically active individual. Students will also develop an awareness of the indications, contraindications, precautions, and interactions of medications used to treat those illnesses and diseases. Prerequisite: admission to the athletic training clinical education program, or permission of the instructor.

Prerequisite: BIOL 220 & BIOL 224

ATEP 8 Health Care Administration 4 units

An in-depth study of the management of health care organizations related to finances, facilities, equipment, organizations structures, medical/insurance records, risk management, human relations, and personnel. Practical and conceptual skills will be taught to help students focus on more efficient health care delivery. Also covered is development of leadership skills, future trends in health care management, guidelines for designing effective work groups and managing conflict.

ATEP 9 Basic Pharmacology for Athletic Trainers 2 units

This is a seminar course. ATEP 9 is an introduction to principles of pharmacology and to the Athletic Trainer's role in the safe administration of medications. Content includes basic pharmacological principles, physiological actions, therapeutic and adverse effects of major drug classifications and routes of administration, basics of drug calculations, and Pharmacology related to physical activity.
Chapter 4

Methodology

My goal has been to create a curriculum for an Entry-Level Masters Athletic Training Education Program, ELM-ATEP, which is feasible to implement and maintain at an institution such as Sonoma State University. My plan was to create samples of syllabi, competencies, proficiencies, sample Power Point Lectures, outlines for course content, evaluation forms, written tests, and practical tests. In order to bring all the components of this project together the final stage was the production of a curriculum with a sample course of study, including a suggested number of faculty needed as determined by the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) in conjunction with Commission on Accreditation for Allied Health Education Programs (CAAHEP).

I developed this curriculum on the basis of personal experiences, educational theorists I studied in my MA Program, and educational athletic training standards for accredited programs.

The idea of an ELM-ATEP came to fruition when I began my master’s level education. I was learning about curriculum and educational theory for the first time and concurrent with this was the unfortunate loss of the athletic training program at Sonoma State University. During my undergraduate experience the program had undergone a multitude of changes; as a student I had more knowledge than most about the changes that occurred in curriculum standards for athletic training program accreditation, because during my undergraduate work the program I was made the transition into an accredited program. In talking with staff at SSU, I learned that the main concerns were financial, faculty support, and facility upgrades necessary for an accredited program.
After researching and talking to many professionals involved with curriculum at several intuitions, I became intrigued with the idea of ELM-ATEP: this option would limit the financial stress of an athletic training program, because the faculty support would be less. On the other hand this type of structure leaves room for growth if the program gains increased financial and faculty support. Several smaller institutions were creating these types of programs successfully, and in fact the programs were mostly impacted with waitlists. The program directors were in agreement that the program is beneficial because their students as undergraduates get the foundational knowledge in subjects such as kinesiology, biomechanics, or biology, and then in their master’s education the students get trained for a “trade” or specialty in which they can graduate and start in the workforce.

After starting this project I had the opportunity to teach some of the athletic training course both at Sonoma State University (SSU) and Santa Rosa Junior College (SRJC). I designed these courses using some of the structure I was theorizing about. This gave me the opportunity to test the ideas and see to what level the students gained knowledge about athletic training. I learned that my teaching strategies of using PowerPoint and lecturing including interactive techniques worked the best. Those students who were participating at SRJC in the athletic training student program were able to share stories and enhance learning opportunities, demonstrating that practical experience and knowledge are invaluable to learning in an athletic training curriculum. I supplemented real life scenarios to enhance understanding of basic injury concepts for those who were not participating in the practical experiences offered at SRJC in the training room. At SSU I was able to increase the challenge to the students because they had all already completed the foundational knowledge in courses like physiology and anatomy, which enabled me to teach about more sophisticated topics. The limitation with the SSU students was
that they were not participating as athletic training students, so their practical experiences were not as relevant as those of students at SRJC who were spending time in the athletic training room. Through the written evaluation process, and some informal verbal communication, I found that overall the students enjoyed the topic because it is interesting and fun to learn, and because it was content they could relate to, as many of the students were also athletes. Many students stated that they would be looking to earn a degree either in the athletic training field or in the physical therapy field because of their experiences in these courses.

If I were to change the curriculum, I would rely less on the PowerPoint presentations and increase active activities in the classroom. As a new teacher I relied heavily on my PowerPoint presentations to ensure I presented all the necessary information, but I think with more experience the information could be conveyed by using more active learning techniques. This would increase the students' learning because athletic training is a "hands on" profession. This could lead to changes in the curriculum structure by changing the delivery of the information, but to reiterate that the content needs to stay within the concurrent with national standards.

In order to create the structure of the curriculum, I started with the creation of the syllabi as the foundation for every lesson within this curriculum. The idea of syllabi, in this program, is a “road map” of what the student can expect in the course. This idea is concurrent with Franklin Bobbit (1924) in his How to Make a Curriculum, where courses and curriculum are designed in a logical, scientific way. His idea was to create a list of expectations and goals for the student. These ideals are demonstrated in the syllabus by way of Student Learning Objectives (SLO’s), the list of lecture topics, list of student responsibilities and expectations, a clear grading policy, and last a schedule with assignment explanations and examination dates. Also included in the syllabus is the course title, required and suggested text, meeting times of the course, location of
the course, instructor information including, contact information, and office hours. These requirements of the syllabus further clarify, for the student, expectations so they can gauge their ability to succeed under clearly identified expectations.

Another demonstration of the design of the curriculum was to clearly list expectations, demonstrated by the list of proficiencies and the professional standards listed as competencies. Proficiencies are introduced early in the curriculum to create foundational knowledge. Similar to Kleibard’s (1992) analogy of the way children learn language, with the foundational knowledge of grammar and syntax, which then develops into more sophisticated language such as creating sentences. This is analogous to the way proficiencies create foundational knowledge by listing skills and then the student progresses into a critical decision maker in the athletic training profession and competencies can be used. Proficiencies are the foundation or the grammar and syntax, which then leads to critical thinking and competencies, similar to sentence structure and formation of language. Proficiencies are list of skills needed in order to create critical thinking and function as an athletic trainer. An athletic trainer may see an emergency, acute injury occur to the knee or the athlete may come to the athletic trainer with complaints of pain, or malfunction of their body part; either way the athletic trainer must synthesize the information and determine a course of action dependent on critical thinking to determine a diagnosis. In the beginning the student athletic trainer will use a set of rules, a more or less memorized list to follow, otherwise known as proficiencies.

For simplicity I use the example of the knee. The student athletic trainer starts with an instructor who walks them through an evaluation process; then they progress to guided practice and last they perform independent practice with feedback from supervision at a distance. In the beginning the student will be guided in inspection, including looking for deformity, swelling,
discoloration, bleeding or any other visual abnormalities. Methodically they next perform palpation of specific sites; again looking for abnormalities such as tenderness, pain, temperature changes, etc. Then they may take the athlete through a series of range of motion tests to find abnormalities or limitations. They may use special tests specific for the knee such as, the anterior drawer, or stress tests such as valgus and varus to determine ligamentous stability. Lastly, again with methodical practice they perform muscular strength testing, again trying to find abnormalities. Next the student documents findings and reports them to the supervisor/instructor. Finally a plan and diagnosis is made with the help of the instructor. But the idea in this stage is to use all the proficiencies or otherwise the memorized list specific for this body part, in a methodical, "memorized," and supervised fashion.

Eventually the proficiencies develop into fluid use of critical thinking skills, which leads to a more focused examination, diagnosis, and treatment plan. At the point in which the student progresses to this stage the proficiency list turns into a competency model, where the student must synthesize information to realistically function as an athletic trainer. The competencies are traditionally introduced near the end of the student's education, and only when the student has the ability to synthesize and critically think by way of using the skills listed as proficiencies. This idea of gradually moving towards critical thinking after gaining foundational knowledge and skill is demonstrated by Kleibard's (1992) analogy of the way children learn language, and Adler's (1983) column one "acquisition of knowledge" through memorization (proficiencies), column two education and "skill development" (physical ability to perform proficiencies), which then leads to column three "enlarged understanding of ideas an values" (competencies). Competencies are not a list but rather an idea or a concept. The student must use critical thinking and synthesize data in order to demonstrate the competency. An example of the knee
competencies are as follows:

1. Demonstrate the ability to manage acute injuries and illness. This will include surveying the scene, conducting an initial assessment, utilizing universal precautions, activating the emergency action plan, implementing appropriate emergency techniques and procedures, conducting a secondary assessment and implementing appropriate first aid techniques and procedures for non-life threatening situations. Effective line of communication should be established and the results of the assessment, management and treatment should be documented.

2. Demonstrate the ability to develop, and communicate effective polices and procedures to allow safe and efficient physical activity in a variety of environmental conditions and making the appropriate recommendations for the patient and/or activity. Effective lines of communication shall be established with the patient, coaches and/or appropriate officials to elicit and convey information about the potential hazard of the environmental conditions and the importance of implementing appropriate strategies to prevent injuries.

3. Select, apply, evaluate, and modify appropriate standard protective equipment and other custom devices for the patient in order to prevent and/or minimize the risk of injury to the lower extremities for safe participation in sport and/or physical activity. Effective lines of communication shall be established to elicit and convey information about the patient's situation and the importance of protective devices to prevent and/or minimize injury.

Before the student has the ability to perform competencies the student must not only learn the proficiencies but also have other foundational knowledge from prerequisites, and specific, traditional lecture sessions. Block, Efthim, and Burns' (1989) mastery learning works by helping students with a series of structured educational experiences in a more or less a conventional classroom. In the beginning or early in the curriculum, introduction of the new topic, such as the
knee evaluation, starts in the classroom with traditional lecture sessions, and texted book readings to support, and reinforce ideals. This is demonstrated in the curriculum with PowerPoint presentations of lecture topics. Also accompanying the lectures is an outline of each subject, which includes specific lists of expectations of knowledge. For example the knee outline includes skeletal structure listing the bones, soft tissues including lists of the ligaments, menisci, and muscles, knee movements in all planes of movement, muscles and nerve innervations that create those movements, normal ranges for degrees of each movement, all the knee injuries of significance, the names of all the stress tests, special tests, and supportive tape applications specific to knee injuries. The student can use this outline as a “check off” list for knowledge acquisition and understanding of each item listed. For reference the student has texted books and lecture materials to gain a deeper understanding. Again the outline demonstrates a clear list of expectations and knowledge base in order to advance and perform athletic training functions with a higher-level thought process.

The evaluations included in this curriculum are numerous and constant. The student has several feedback mechanisms to gauge progress and competency. Evaluations come in the forms of tests both written and practical, peer evaluations both verbal and written, instructor evaluations both verbal and written, and ideally a once a semester evaluation by the program director. This creates the model of “teach-test-re-teach” cycle as demonstrated in mastery learning. This also creates an opportunity for an advanced student to teach a skill, which can enhance the competency of the skill. The peer evaluations are included with each competency and proficiency. The peer evaluator ideally is a more advanced student and verbally gives feedback to the student and documents in written format the specific needs for improvement, if any. This process occurs twice for each proficiency and competency prior to an instructor
evaluation. The instructor then evaluates the student and it is expected by the time the student performs the skill to the instructor that the student will demonstrate the skill at an appropriate skill level. In the case that the student does not perform the skill at adequate skill level the instructor will re-teach and help the student reach adequate skill level. Another evaluation format is testing. This occurs in the form of practical testing and written testing. The practical tests in the beginning are again lists in which the student memorizes and performs skills for each body part. This format allows the instructor to ensure the student’s ability to physically perform injury evaluations. This format also prepares the student to integrate the memorized knowledge into critical thinking in the “live” environment. The written test format is a simulation of the certification examination. This format is a fill in the blank, multiple choice, and labeling, which demonstrates integration of knowledge, and allows for a quantitative measure of “mastery” of content.

The format of teaching and evaluation discussed above is not mandated by the accreditation board. The structure that is mandated is the content of subject matter, appropriate number of faculty, and student ratios/supervision. The Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) in conjunction with Commission on Accreditation for Allied Health Education Programs (CAAHEP) creates and enforces these mandates. In order to become an accredited program and uphold accreditation the institution must prove, through written documentation and a site visit, that they are teaching the content mandated and that supervision is within ratios and appropriate. Sonoma State University is unique in its setting in that the geographic location of SSU offers an ideal site for an ELM-ATEP. There are numerous medical training opportunities for the students, including the junior college with certified athletic trainers and equipment intensive opportunities, several local physical therapy clinics, level II
trauma hospitals and many nearby orthopedic physician offices. Also the student population, the undergraduate kinesiology program, and the education curriculum, already in place lends itself to be an ideal institution for an ELM-ATEP. The JRC-AT in conjunction with CAAHEP has mandated specific student teacher ratios and content of subject matter. The content of subject matter appropriately demonstrated in the course of study guidelines. The ELM-ATEP is a two-year (four semester) program including two "summers" one eight week session prior to beginning the program and 200 hours of clinical rotation with thesis work in the second summer.

For the purposes of this program, the number of students to be allowed into the program will be 20-24, every two years. As the program grows and the institution expands the program, students could begin every year; but until funding and increased staffing is available, my recommendation for this program is acceptance on a two-year basis so that a class is graduated before a new class starts. This allows for fewer personnel and decreased cost for the program. Of the 19 courses needed to complete this degree, 12 of these courses are already offered at Sonoma State University. Depending on the current teacher matrix and the course sizes, these courses may need an additional section to be offered once every other year. The other seven courses are specific to athletic training and would probably need one full-time instructor to appropriately teach these courses. An additional staff position would need to be the program director.

Although ideally the director would not be an instructor, for a program this size it would be appropriate that the director maintain a limited course load. The program director would also be in charge of clinical rotations and ensuring all approved clinical instructors (ACI's) both on campus and off site are qualified and trained. Unfortunately, a graduate student cannot qualify for this role, but they do qualify as advanced students and peer evaluators. Overall, to start a program this size the Kinesiology Department at Sonoma State University would necessitate an
increase of approximately 1-3 faculty; in addition, the program would have to rely heavily on the community for clinical experiences and ACI supervision.

This curriculum is a product of a multitude of educational theorists, personal experiences, and educational athletic training standards for accredited programs. From the examples provided, there are clear guidelines directly from the Board of Certification of Athletic Trainers (BOC-ATC) for expectations, evaluation processes, and program plan.

This program represents just the start for developing an ELM-ATEP. A program such as this is a newer concept, and an athletic training curriculum is still in development. This program offers the current standards and curriculum matrix with several evaluation processes by the students, which will lead to process changes and further development of the curriculum. The process by which the curriculum will be changed will be a decision by the faculty with input from the national accreditation board and by the students who are in the program.
Chapter 5

Reflections

Athletic training curriculum is changing. Athletic Training as an established medical profession is fairly new. The leadership of the profession has recently defined and standardized the roles and responsibilities of the profession. One of the ways in which definition and standardization has been made more clear is through publication of the "Role Delineation Study." This document lists and clearly defines the roles and responsibilities of the professional athletic trainer. One of the results of clearly defining the roles and responsibilities of the profession was standardization of the educational curriculum. The national educational board created curriculum standards based on the Role Delineation Study. The thought is that we should teach athletic training students based on the roles performed by actual practicing athletic trainers. It is only now, that the professional standards have been created, and the national curriculum is standardized. New educational strategies can be focused on how it is best to teach athletic training curriculum.

Based on the idea that athletic training students should be taught by the standards to which they will adhere, two routes for graduation were created. One option was the internship-based program, where students would spend a specified amount of hours in a supervised clinical setting, and concurrently take some form of theory-based courses with the emphasis clearly on the internship hours. The other option was the curriculum-based setting where students enrolled in specific athletic training courses, which in theory, would prepare them to practice as an athletic trainer. In the curriculum-based programs some clinical hours were required but the emphasis was clearly on the theory in the classroom. Using the concepts of both models and the "Role Delineation Study," I created the new curriculum described in this thesis.
At first, the idea of a national standardized curriculum caused a reaction of negativity. I thought standardization would take the creativity of teaching and learning out of the classroom. What I learned from creating and teaching this curriculum is that there is still plenty of room for creative educational strategies, and a multitude of options for course design. I chose to demonstrate a curricular model that uses a variety of educational theories, and a multimodal teaching plan. With this curriculum the students learn in several ways, from lecture to reading the text, to actual hands-on practice. I found that was the best way to stay within the professional standards guidelines and it created an environment where students have the best chance to succeed. Even with standardization this curriculum has the variety to continue to make the curriculum interesting and challenging for both the students and the educators.

This thesis is important to developing athletic training educational programs. Developing educational programs is at the forefront of Athletic Training education. Curriculum-based programs are revamping their curricula to meet new standards, while other programs are starting from the beginning and creating new sites for athletic training education. This thesis can be used as a guideline for creating an athletic training curriculum by using a multimodal based curriculum approach. This curriculum brings new curriculum ideas to the profession, changes teaching concepts and ideas, and diversifies learning.

Once this profession and curriculum has a few more years to develop, it would be important to do further research and to determine if this curriculum is in fact successful. My suggestion for further research would be to determine how to gauge a successful athletic training program. In terms of athletic training a successful program may be defined by: educator and/or student satisfaction, test scores, pass rate on the national certification exam, job placement after graduation, advancement within the athletic training profession, national awards and
recognitions, professional development, such as developing technology for assessment and evaluation of injuries, and professional involvement, such as becoming a board member locally or nationally. In general there should be both qualitative and quantitative measures of success. Future research and ongoing self assessments of the curriculum needs to consistently take place, in order for the curriculum to continue to advance and develop in pace with the medical community and technologic advancements.

Specifically for Sonoma State University this curriculum, if used in the Entry Level Masters model, could be ideal. California in general, and specifically northern California, does not have enough athletic training educational programs to meet the job place demand, especially at the masters level. Sonoma State University is in an ideal location, has the ability to provide smaller student to teacher ratios, includes a variety of athletics, which leads to a variety of clinical opportunities, and a plethora of medical community resources to support an athletic training education program. Unfortunately the on-campus resources are not adequate. The athletic facilities are outdated and small, which are not conducive to teaching an athletic training program. The financial resources at this point are unavailable for the creation of a new program, facility upgrades, or faculty hires. Lastly there would need to be a culture change within the kinesiology department, because there is not the support to shift the kinesiology department's focus towards an Athletic Training Education program. The culture shift would need to support the program, because it would impact other courses within the Kinesiology department, many of the faculty would need to change the current curriculum to include athletic training concepts. My goal in creating this thesis was to increase the awareness that a program like this can and should exist, to highlight the potential SSU has to create this program, and to show the possibilities it could create for students. My hope is with this awareness, along with the rising demand for
athletic training education programs specifically in California, a program will soon be created at Sonoma State University.
Appendix A

Definitions of ELM-ATEP Positions as Defined by CAATE

Program Director - Responsibilities

The Program Director shall have a recognizable department responsibility for the accountability of the day-to-day operation, coordination, supervision, and evaluation of all aspects of the athletic training educational program.

Interpretation: Administrative and supervisory responsibilities of the Program Director must be described in the job description. These responsibilities, in addition to regular faculty responsibilities, should relate to overall Program responsibilities. College/University appointments to the position of Program Director must be accompanied by administrative release-time or may be built into an academic load appointment. The amount of release-time or load of the Program Director should be consistent with other Program Directors with faculty positions either within the academic unit or related units. A general rule of thumb is a 25% load reduction for administrative responsibilities. Other non-faculty responsibilities of the Program Director must receive the same consideration when determining a combined load in a 100% appointment. For example, the Program Director may have a dual appointment as an athletic training service staff member. When this occurs, the combined appointments should represent a 100% appointment with separate responsibilities proportioned within that full-time appointment. Release-time for administrative duties of the Program Director should represent part of that proportion, the extent of which should be comparable to other Program Directors within the same or similar academic units. Recognition of the extent of the Program Director's role to the success of the academic program for purposes of signatory authority, salary and tenure considerations, and for release-time form other academic duties should be supported by the institution in a manner appropriate to similar administrative roles within the institution.
Program Director - Qualifications

The Program Director shall be a full-time employee of the sponsoring institution and shall be a member of the teaching faculty as defined by school policy. The Program Director shall also have current National Athletic Trainers’ Association Board of Certification (NATABOC) recognition as a certified athletic trainer and have appropriate experience, as such, in the clinical supervision of athletic training students.

Interpretation: Full-time employment within the sponsoring institution represents the minimum standard expected of the institution in order for the Program Director to carry out leadership and management functions. The Program Director must be appointed as a faculty member with the rights and privileges of a full faculty member. These rights and privileges usually include departmental and institutional voting rights and committee representation as defined by institutional standards.

Faculty - Responsibilities

All faculty members assigned to teach required subject matter shall be familiar with and incorporate the “NATA Athletic Training Educational Competencies” as they pertain to their respective teaching areas.

Interpretation: Faculty members assigned to teach required subject matter include those faculty who teach any of the subject matter listed in Section II A1c of this document. Faculty teaching courses that incorporate the athletic training subject matter must be involved in the development and implementation of the curriculum as well as in the completion of the NATA Competency Matrix. Involvement of faculty should be sufficient: (1) to ensure to that each faculty member who teaches subject matter is aware of the athletic training education program, (2) has at least a basic understanding of the profession to know how their course(s) meets the needs of students, (3) involves the athletic training students in the course, and (4) verifies that the NATA Competency Matrix identifying competencies met by their course(s) is correct via review and signature of verification. The program director must have a listing of courses by number, title, credit hour designation, description, and faculty.
Faculty - Qualifications

Faculty members responsible for teaching required subject matter shall be qualified through professional preparation and experience in their respective academic areas as determined by the institution.

Interpretation: The institution should have documentation in the form of a position or job description that include the minimum expectations for work experience and professional preparation for faculty responsible for teaching the required subject matter. Each faculty athletic trainer should have on file with the academic unit or program director an updated vita. In addition, each faculty member should be recognized by the institution as qualified and authorized to teach the courses for which they are assigned. The College/University bulletin or catalog should have a listing of faculty with academic rank and departmental affiliation.

Faculty - Number

There shall be sufficient faculty/staff to (1) provide instruction/supervision on a regular basis, (2) advise students on content of didactic/clinical experiences, and (3) maintain student to faculty/staff ratios appropriate for educational purposes as determined by the institution.

Interpretation: Faculty members assigned to teach required subject matter should be designated as part of the teaching faculty by the sponsoring institution and identified as faculty providing instruction in the required subject matter by the academic unit. In circumstances where courses are taught at another institution and substituted for required course completion, the faculty responsible for the course(s) should be a member of the teaching faculty of that institution. Clinical instructors who supervise the clinical experience portion of the curriculum may or may not hold faculty status; however, these instructors should have designated responsibilities for regular instruction, supervision, and advisement about the content of the experiences and the institution should support these positions and responsibilities. The number of clinical supervisors needed to support clinical practice activities should be formally arranged in a clinical affiliation agreement as identified in Section IA2.

Maximum and minimum class sizes should be determined by institution policy comparable to
other programs both in lecture and lab settings for purposes of meeting the nature of the content, effective instruction, and successful learning experiences of the students. To determine the effects that class size and the number of regular faculty may have on the outcomes of the curriculum, program directors may wish to use the results of course and clinical experience evaluations, survey's of graduates, and other outcome indicators to determine effective ratios in class and clinical experiences. Descriptions of courses should be maintained at the institution that includes a registered class size (for each section of the course) and for every offering of the course. The program director must keep accurate and continuing counts of students by assignment to clinical instructors. The relationships among these factors may assist the program in determining effective and sufficient numbers in the teaching faculty/staff to support the athletic training education program.

Programs should seek a variety of instructors and supervisors in the specific athletic training course work, the other athletic training subject matter areas, and the clinical opportunities. In any case, the number of faculty needed to support required curricular offerings should be supported by the institution.

*Other Instructional Staff - ACI Responsibilities*

An ACI shall be a faculty, staff, or adjunct allied health or medical community member of the sponsoring institution or affiliates who provides formal instruction and/or evaluation of students in the clinical proficiencies of the athletic training educational program. An ACI shall perform psychomotor and/or clinical proficiency instruction and evaluation at some point during the educational experience. Evaluation of the proficiency shall be done in a one-on-one basis as determined by the institution. The ACI shall also be involved in the learning-over-time continuum during the clinical experience.

*Interpretation:* Faculty, staff, or others formally identified by the program to teach and/or evaluate the clinical proficiencies identified in the "NATA Athletic Training Educational Competencies" are those who receive training as an approved clinical instructor (ACI). ACIs must be involved in the development and implementation of the curriculum, and in the
completion of the Competency matrix. Involvement of ACIs must be sufficient: (1) to ensure that each ACI can instruct the clinical skills that support athletic training services, (2) to provide for demonstration and feedback in the student's development of mastery, (3) to participate in accepted educational practices for evaluation of the student as skills mature, and (4) to verify that mastery of the proficiency has been met. The ACI is responsible to provide direct supervision for the athletic training student during evaluation of the proficiencies. This involves visual and auditory contact during these times. ACIs are responsible to determine mastery level performance for athletic training students; however, the initial instruction and early developmental skill evaluations may be completed by other faculty or staff.

An example may help to clarify the responsibilities of an ACI. The program may wish to have an exercise science faculty member initially instruct students in the skills associated with body composition measurements. As part of an exercise physiology course, the skills developed by the student may have been demonstrated by taking class data and using it to solve problems associated with the effects of exercise on body composition. In this case, the ACI, who ultimately will evaluate the student on development of entry-level mastery of body composition measurements is responsible to coordinate the skill instruction with the exercise physiologist or to reintroduce the skill instruction with a focus toward athletic training. Further, the ACI should guide the student in the development of those specific skills taught or coordinated by the ACI within the context of practical athletic training clinical applications before testing the student on his/her skill level. In the last stages of the continuum, the ACI is responsible to assist in building the confidence of the athletic training student and to evaluate the maturity of the entry-level skills attained by the student. The exercise physiologist participates in the learning over time continuum by providing the exercise physiology syllabus objectives, schedules, and lab grades for the initial point of learning this skill proficiency. The ACI documents continued progress toward mastery through a clinical experience or practicum course with a syllabus, schedule, and grading.

The program director must have a listing of practicum courses by number, title, credit hour designation, description, and ACIs assigned. Formal program arrangements for the responsibilities of the ACI are required.
Other Instructional Staff - ACI Qualifications

An ACI shall be a NATABOC Certified Athletic Trainer who has completed clinical instructor training and is currently an NATA approved clinical instructor (ACI).

NATA Approved clinical instructors responsible for teaching required subject matter shall be qualified through professional preparation and experience in their respective academic areas as determined by the institution.

Interpretation: The Approved Clinical Instructor (ACI) is an individual who has at least one year of work experience as a NATABOC certified athletic trainer and who has completed clinical instructor training through a Clinical Instructor Educator (CIE). Both the ACI and CIE designations are professional added qualifications for educators in the athletic training field of study and are designated through the programs and activities of the NATA Education Council. Although faculty or staff who have assisted students during their clinical education or who have taught laboratory skills, and who are qualified to provide such instruction, may teach clinical proficiencies related to their field of expertise, only an ACI is qualified to verify the entry-level performance of those proficiencies related to the field of athletic training.

An ACI is qualified to direct an athletic training student's learning over time continuum. The background of an ACI should be sufficient in knowledge and skills to teach and demonstrate the skill in a controlled environment (e.g. classroom/laboratory). This experience in teaching may be informal through the mentoring process. Further, the ACI should have a guided formal or informal background in developing clinical experiences for athletic training students. The program must identify ACIs corresponding to clinical proficiencies/courses and have resume information on file for each ACI.

Clinical Instructor - Responsibilities

A clinical instructor shall provide direct supervision of students in athletic training and other health care settings during the field experiences. The instructor shall be physically present in order to intervene on behalf of the individual being treated.
Interpretation: A clinical instructor may be an NATABOC certified athletic trainer or other qualified health care professional. Regardless of professional preparation, they should possess at least one year of work experience in their respective clinical area. While the clinical instructor is not charged with the final formal evaluation of clinical proficiencies, they may also be qualified as an ACI for this purpose.

When students have established competent clinical proficiency to work directly with athlete-patients as determined by the Program and as evaluated by the ACI, it is desirable that further and more integrated development of skills and proficiencies be organized and developed by the ACI and clinical instructor. Supervision must be maintained through daily personal/verbal contact at the site of supervision. The clinical instructor should be responsible to plan, direct, advise, and evaluate the students' athletic training field experiences. The program must maintain a listing of the assignment of students to clinical instructors and develop a mechanism of monitoring their progress toward meeting clinical education and field experience exposure requirements. Formal arrangements for the responsibilities of the clinical instructor are desirable.

Clinical Instructor - Qualifications

An athletic training clinical instructor in the traditional experience shall be a certified athletic trainer in good standing with the NATABOC. In other health care settings, the clinical instructor shall be duly authorized to practice in their respective area.

Interpretation: The clinical instructor who is employed in a professional work setting should have at least one year of work experience in their respective academic or clinical area. It is desirable that the majority of this time be involved with the clinical supervision of athletic training students and that the clinical instructor express interest in the professional preparation of these students. Further, it is highly desirable for the clinical instructor to demonstrate involvement in athletic training and sports medicine through participation in clinical education programs, and membership and involvement in related professional organizations. A NATABOC certified clinical instructor also may be qualified as an ACI. In the event that an athletic training
clinician is qualified through preparation in the role of a clinical instructor, but has less than one year of work experience as a certified athletic trainer, a qualified and experienced clinical instructor-mentor should be assigned by the Program to guide the less experienced clinician. Under these circumstances, the clinician with less than one year of work experience in the clinical supervision of athletic training students, but who otherwise is qualified according to the Program, may be assigned as a clinical instructor. In some instances an athletic trainer may be licensed by their state of residence and the person does not possess NATABOC Certification. As this individual is not NATABOC certified, s/he would not be allowed to supervise the one-year of traditional experience required under the supervision of a NATABOC certified athletic trainer. Additional clinical instructors in other health care professions must be licensed, certified, or registered in their state of residence to practice in their respective field. The program must have resume information on file for each clinical instructor.

*Medical and Other Health Care Personnel*

The athletic training education program shall assure opportunities for athletic training students to become familiar with the roles and responsibilities of various medical and other health care personnel as they relate to the profession of athletic training.

There shall be involvement of various medical and other health care personnel in formal or informal instruction.

*Interpretation:* Medical and other health care personnel may or may not hold formal appointments to the instructional staff. Nevertheless, their involvement on a planned, regular, and continuing basis is highly desirable. Medical specialists in family practice, pediatrics, or orthopedics should make up the core of physician contacts that interact with students regarding medical practice. Dentists, nurses, occupational therapists, physical therapists and other medical specialists in dermatology, cardiology, internal medicine, neurology, ophthalmology, otolaryngology, pediatrics, physical medicine, and others could be used to enhance and diversify the curriculum offerings and clinical experiences. The number and diversity of these professionals who interact with students will be related to many factors including the availability of these professionals in the community and their interest and motivation to provide educational
opportunities. Regardless of the diversity, planned experiences must expose the student to the roles and responsibilities of health and medical professionals as they relate to the health care of the physically active.

Opportunities to observe and interact with health and/or medical specialists in their work setting might occur as often as daily when students are clinically assigned to some clinical rotations and during some rotations as infrequent as when significant injury occurs. These signal opportunities should not be the only exposure of students to health and medical specialists. More regular or planned interactions would involve guest lectures, presentation of cases by team physicians, surgical observation, clinical assignments within other facilities such as physician’s offices, physical therapy clinics, etc. Throughout the program of study, athletic training students must be formally or informally instructed by various medical and other health care personnel. During this process or during other course work content, students must develop an understanding of the roles and responsibilities of health and medical professionals in the care of the physically active and as they relate to athletic training.

The program must maintain a listing of the medical and other health care personnel who are assigned by the program to instruct or provide clinical experiences to athletic training students. Along with the listing of names should be corresponding professional credentials, how the provider is used in the curriculum, and when or how frequently the provider is used.

*Medical Director or Team Physician - Responsibilities*

The medical director or team physician of the program shall provide competent direction and/or guidance to ensure that the medical components of the curriculum, both didactic and supervised clinical practice, meet current acceptable performance standards.

The team physician(s) shall be involved in the athletic training educational program.

*Interpretation:* When a program wishes to use both a medical director and a team physician, the roles and responsibilities of each must be clearly defined through written individual job descriptions. The medical director is responsible for the coordination and guidance of the
medical aspects of the educational program. The team physician is the clinical practitioner providing services to the athletes and those involved in physical activity. There may be several team physicians serving in the clinical practitioner role.

The team physician (MD, DO) should have a sincere interest in the professional preparation of the athletic training student and must be willing to share their knowledge through ongoing informal discussion, clinics, and other in-service educational sessions. Involvement of the team physician as a full-time or part-time classroom instructor or guest lecturer is encouraged.

The athletic training room and allied clinical sites provide the clinical settings in which the athletic training student is exposed to the medical practices of the team physician. Thus, the team physician’s presence in the athletic training room on a regular basis is an important aspect of the student’s clinical experience.

The medical director and/or team physician(s) must be in good standing with their respective credentialing/licensing agencies. Also, the medical director and/or team physician(s) should be willing to help guide the program and act as proponents of the athletic training educational program within the medical community. In addition, the medical director and/or team physician(s) must be willing to be involved in the development of the curriculum and in the dissemination of information to athletic training students. The process of involving physician leadership in the program serves to assure that information presented to the student has a medical viewpoint. Finally, the medical director and/or team physician(s) should encourage other physicians to be involved with the instruction of the athletic training student.

The team physician(s) must be aware of and agree to be involved with the athletic training educational program. Although the team physician may or may not be present in the athletic training room on a weekly basis, he/She should be involved in the planned formal instruction of the athletic training student through lecture, discussion, or other didactic means and/or through planned informal instruction of the athletic training student.
A job description of the medical director or a contract or agreement with the physician designated as the Team Physician must be maintained by the program. Involvement of the medical director or team physician must be documented in annual reporting and program assessment materials.
19. Cairns, Marrilyn A. “Which should I Teach: Critical Thinking or the Facts? Can I do Both? A Practical course in Critical Thinking.” North Easter University, Boston, MA.
Nov. 1996.


73. Mensch, James M., and Catherine D. Ennis. “Pedagogic Strategies Perceived to Enhance Student Learning in Athletic Training Education.” Journal of Athletic Training 37.4


105. Ule, Andrej. “Reasons for Popper’s Scientific Realism.” Revija sa Sociologiju.
109. “What’s Wrong With Madeline Hunter?” Educational Leadership