ADVANCED REPRODUCTIVE TECHNIQUES CURRICULUM, A COLLABORATIVE EFFORT WITH SWTC AND UW-PLATTEVILLE SCHOOL OF AGRICULTURE

Approved: Richard A. Rayne Date: 8/25/10

Project Advisor

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An Educational Project

PRESENTED TO THE

GRADUATE FACULTY

UNIVERSITY OF WISCONSIN-PLATTEVILLE

IN PARTIAL FULFILLMENT

Of the Requirements for the Degree

Master of Science

In Adult Education

Jeffrey A. Dornink

2010

Abstract

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Jeff Dornink

Under the Supervision of Dr. Richard Rogers

The purpose of this project was to develop a partnership between UW-P and SWTC to produce curriculum in advanced reproductive techniques. Advanced reproductive techniques is a highly technical skill used in the dairy industry by employees specializing in reproductive management of dairy cattle.

The project was to develop a one credit course that could be taught by either institution as a collaborative effort or individually. This one credit course would be designed to be offered in a short time frame (3-5 days) and as a hands-on format. The student would be required to have completed pre-requisites in dairy cattle reproduction before taking the course. The course requires the student to be highly competent in advanced reproductive skills to successfully complete the course.

The collaborative effort between the staff of UW-P and SWTC produced the competencies; five competencies were identified, which was the frame work used to produce the outcome summary. These competencies then led to the conditions and criteria in which a student and instructor would be using in the laboratory. World Wide Instructional Design Systems (WIDS) is the approved curriculum system for the technical college system and provides the structure for the final design of the curriculum.

Three critical areas were researched to support the project. Skills attainment, WIDS education design system and institutional collaboration; these important components support the efforts of this project of curriculum development and partnerships between institutions.

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CHAPTER 1

INTRODUCTION

In post-secondary agriculture education, the need for skilled labor advances daily. Many students who seek employment in the dairy industry wish to expand their skills in specialized areas. One area of specialization is reproductive technologies. Many large dairies in our state will hire employees that have developed advanced skills in specific areas to compliment veterinarian care. An area that has been receiving attention of this nature is dairy cattle reproduction. Traditionally, an employee would be expected to be skilled in the areas of artificial insemination and reproductive management protocols. These skills are identified as program outcomes in the Dairy Herd Management programs in Wisconsin. Students currently demonstrate their skills in these areas through competency-based curriculum that was developed in a state-wide curriculum project. These skills have been essential to the success of an employee. Each student in the Dairy Herd Management program is required to successfully complete reproduction class, reproductive management protocols and artificial insemination of dairy cattle. For the past 5 years, some students have shown interest in learning advanced reproductive technologies, simply defined as palpation and pregnancy diagnosis in dairy and beef cattle. During this time Southwest Wisconsin Technical College made arrangement with the University of Wisconsin – Madison, Dairy Science Department to train those students wishing to expand skills in this area. Through the development and use of this curriculum students will be able successfully palpate the reproductive system of the female bovine without veterinarian assistance.

Historically, differing views have limited acceptance of transfer credits between the Technical College System and the University of Wisconsin System Typically, the hurdle that the Wisconsin Technical College system has faced is that the University has felt the curriculum offered in the technical system was too "watered down". Therefore, transfer students from the Wisconsin technical college system would face challenges that would limit their chances of success in the University System. Over time, the Technical College system has developed state wide curriculum in Worldwide Instructional Design System (WIDS) that standardized the education process throughout the Wisconsin Technical College System.

Statement of the Problem

This researcher has wanted to offer this class at Southwest Tech. However, Southwest Tech doesn't have an operating dairy farm; therefore, any course work of this nature is limited to the generosity of local dairy farms. Recent economy changes in our region have made offering reproductive techniques challenging; to expedite this class offering it has become necessary to find alternative resources to make this class a reality.

There has been interested in developing a working relationship with the University of Wisconsin-Platteville (UW-P), to date, Southwest Tech has developed a successful articulation agreement with the University Of Wisconsin-Platteville. This articulation agreement formulizes transfer of credits earned in the Dairy Herd Management program to the Animal Science program at the University of Wisconsin-Platteville. The successful transfer of credits from program to program lead to the idea of developing a course that could be offered through both institutions. Accordingly, this researcher approached School of Agriculture at UW-P to develop

a collaborative course that could be offered at both campuses. UW-Platteville has a two hundred cow dairy facility that could serve as a laboratory setting in which students could use dairy cows regularly. Additionally, both campuses offer a course in bovine reproduction and artificial insemination that encompasses the study of anatomy, physiology, hormones and protocols, this course would act as a prerequisite to the Advanced Reproductive Techniques course. Discussions between both campuses have lead to an agreement that would allow students enrolled at either, Southwest Tech Dairy Herd Management or UW-P Animal Science to take this class. Using the same facilities and curriculum would provide a seamless, trouble-free approach to expand skills in dairy reproduction.

Purpose of the Study

The specific objectives of the project are as follows:

1. Design a curriculum using WIDS that will be used at Southwest Wisconsin Technical College (SWTC) Dairy Herd Management and the University of Wisconsin- Platteville School of Agriculture
2. Establish an advanced standing technical certificate in Advanced Reproductive Technologies for Southwest Wisconsin Technical College

The intent of this project was to develop a collaborative course curriculum to be used by an instructor employed to teach Advanced Reproductive Techniques. The WIDS system uses competency- based education theory as a basis for curriculum development. The disconnect

between the Wisconsin University system and the Wisconsin Technical System is that both use theory based learning My intention of this study is to demonstrate that different styles of learning may achieve higher success rates in and out of the classroom. Theory based learning styles are important to achieve basis of knowledge, but when success in job performance is critical other forms of education will be necessary. The industry based training methods have demonstrated success industry wide, therefore I believe post secondary education could benefit from the successes of these methods by incorporating them into our traditional class rooms.

Assumptions of the Study

This research is based on the following assumptions:

- That dairy farm owners and students enrolled in production livestock programs would desire to add to their skill base.
- Artificial insemination training would be critical in the successful completion of this course.
- That students enrolled in Dairy Science would be interested in pursuing practical experience in advanced reproductive technologies of reproductive palpation and ultrasound technology.

Delimitations of the Study

The results of this project were limited to the development of curriculum for the Advanced Technical Certificate in Advanced Reproductive Technologies for Southwest Wisconsin Technical College and the University of Wisconsin-Platteville School of Agriculture.

Methodology and Procedures

Creation of this course will allow the student to develop a more advanced skill base for career advancement in reproductive management of the dairy herd. As result of this project two goals should be accomplished. First, a standardized one credit curriculum was developed for Advanced Reproductive Technologies of dairy cattle. Second, a collaborative relationship was developed between the Wisconsin State University System and the Wisconsin State Technical College System through the use of facilities, resources and staff.

Definition of Terms

World Wide Design Systems (WIDS): Is a curriculum design system that incorporates traditional learning theory and practice into performance based education.

CHAPTER II

REVIEW OF RELATED LITERATURE

Worldwide Instructional Design Systems (WIDS)

The WIDS instructional model is built around the theory of performance based, learner centered education. This model has been adopted by SWTC and the technical college system for curriculum design. The WIDS model uses the student as a focal point to begin the process of developing learner based education. Once the customer has been identified, the developer proceeds to the when, how and what of the curriculum, the designers of WIDS offer this insight,

> *"WIDS offers a model for strategic planning of learning. After setting learning goals—"what"; establishing criteria for determining "when"; teachers or designers plan strategies for—"how". These questions serve as a guide through a logical process which leads to effective teaching and learning"* (WIDS, 2010).

This theory for designing curriculum gives both the instructor and the student a clearer vision, and pathway to successful learning outcomes.

AS the WIDS system is the accepted model for curriculum development, this researcher along with the staff at UW-P began the work of designing a course that would meet the needs of students that wished to advance their skills in reproductive management. As a result of communication with UW-P, it was decided that this course would be one credit course and offered in a week long format. It was also decided that each student would need to have successfully passed pre-requisite courses in dairy cattle reproduction and artificial insemination to achieve success in advanced reproductive techniques

It is generally accepted that with each credit a course offers, 5-20 competencies should be developed. Five essential competencies were decided upon to anchor the advanced reproductive techniques course. Learning outcomes were than developed, conditions and criteria were added to support the learning outcomes and competencies. Based on the difficulty of the competency, each category of outcomes and conditions has 5-7 criteria.

An example of the WIDS curriculum design for advanced reproductive techniques is demonstrated through the first competency;" Palpate dairy cattle reproductive tracts". For this competency four learning outcomes were identified, the "what" of this competency; locate the cervix, locate the uterus, locate the right ovary and locate the left ovary. The condition, the "how and when", is through palpation of the reproductive tract. The selected criterion for this condition tells the student the degree and ability in which they must achieve to master the skill (competency)*. The decision was made to set the bar high, it is required that each student perform all tasks at the eighty fifth percentile, a higher success rate could be expected but is not practical as the student is working with unfamiliar live subjects (dairy cattle).

The final piece to curriculum design is assessment. The student would be assessed after several practice sets in palpation. At the end of the course, the instructor would use a rubric to assess the success of each student. A system of pass-fail can be adopted to assess student's success in palpation.

*NOTE: A complete list of competencies, outcomes and conditions can be found in the WIDS curriculum located in Appendix A.

Skills Attainment

"In Great Britain, J. Bynner found that poor basic skills tend to result in men's pursuit of unstable employment and woman taking the Review career path of motherhood and home care". (von Zolinger, 2000) What does this statement have to do with industry based training and vocational education you may ask? When society chooses not to pursue life- long learning skills they tend to find themselves trapped in a cycle that is difficult to escape from. Still what is the parallel here? Through the acceptance of life- long learning skills we can then stimulate the need for higher education; higher education is valued through validation of subject material leading to the necessity to search for effective methods of delivery that will complete the education cycle.

Through research and development, ASTD (American Society for Training and Development) has discovered that success in the work place can be determined by some elementary foundation skills. Chief among those basic skills are our communication abilities (written and oral), critical thinking skills and personal skills. These important life skills are categorized into the dimensions of Cognitive and Socio-communicative. It has been documented that students originating in lower social classes have had difficulty adjusting and developing these skills to meet the demands of school and work. Post secondary education has recognized these limitations and has taken steps to realign their mission from top to bottom to meet the needs of their constituencies. Corporate America has played a vital role in this process; changing local markets and globalization of the job market have necessitated this shift at the grass roots level.

Business and Industry also have recognized the need for formal training within their walls. They have successfully developed methods that meet the needs of the business and its employees. Corporate America has also recognized the need to accommodate the varied learning styles of their work force. Therefore, serving this need has lead to the development of various forms of training and education through a variety of modes and mechanics.

As the demand for a highly skilled work force has accelerated past the available pool of potential employees, business and industry have accepted the challenge by developing training methods that accommodate their needs. Partnerships between business and post-secondary education have evolved to meet these challenges and opportunities. Communication between industry and post-secondary education provide vital links that lead to skill building and life- long learning. Post-secondary education prospers through the success of industry and its partnerships by offering diverse methods of delivery.

To facilitate life- long learning, sound planning is essential for customizing goals and objectives to the delivery method. Facts hold true that design and delivery are important factors leading to high success rates among learners. Expertise at the post-secondary in curricula development is also of vital importance.

So how did industry-based training get its start? Computer based training was the starting pointing for what we know as industry based training. As in all areas of our society today, industry based training is evolving quickly as budgetary dollars have dictated this evolution. The buzz words in the industry today include simulations and scenario based learning techniques. In both situations, designers of this type of curricula need to follow guidelines to

ensure success for this method of training. Learner feedback, group interaction and game-like appearances raise retention rates of industry employees. The traditional lecture style most commonly used in the four and two year programs tends to lean towards a deductive style of learning requiring the learner master a prioritized listing of subject matter. This style of learning tends to be less kinesthetic in nature and more knowledge based. On the other hand industry based training is an inductive approach that is highly kinesthetic which in turn motivates the learner to modify behavior through competencies. It was also suggested that the above training methods were successful when incorporated with traditional styles of theory based education enhancing behavior modification and supporting performance skills. The retention of material provides building blocks for quality work and future training sessions. One employee said "the activities were nothing like learning; they actually were fun". (Kindley, May 2002)

The objectives of the industry based training center around center around three activities, the ability to acquire knowledge, demonstrate skills, and change attitudes. Acquiring knowledge is the learning that takes place in the traditional approach to education, generally achieved through lectures, audio-video presentations and independent reading. On the other hand, skills and attitude change will take a non-threatening environment that will encourage open discussion, practice to master competencies and supported by critical feedback of peers and the facilitator. It was mentioned earlier that role plays and simulation play important roles to achieve positive results. There are nearly 18 different types or methods of activities that are used for industry based training. It is important that the trainer keep in mind that their role should be as a facilitator not an expert in these activities, this allows a nurturing non-threatening atmosphere to occur.

Role playing and simulations are common among today's training method, these activities allow for immediate and objective feedback, illustrate desired behavior enhancement through video-taping while acquiring desired skills and behavior. These activities are further enhanced with management games that mimic common games such as "What's my line", monopoly and cross word and matching type games. Other effective types of training include the in-basket exercise and tag team role plays. Complete definitions of industry based training methods can be found in the definition portion of this paper.

Another important aspect of industry based training methods is evaluation process used to monitor the effectiveness training. In the traditional classroom paper pencil methods generally are accepted as the method of choice to determine progress within the class room. Though paper and pencil methods can be used in certain situations of training they do not always capture the true picture of success. Today's standard measure of success is referred to as ROI (return on Investment), traditionally the term has been used as a financial measure based on historical data. Today, industry uses this term to measure the success rate of in-house training. A mathematical formula has been designed to measure total benefits- total costs, divided by total costs to come up with a value and worth of training. Gillian Flynn says this about ROI, " The return on investment (ROI) is the holy grail of sorts for the training industry. Everybody wants it, everybody has theories on how to use it, and most are willing to go to great lengths to do so" (Conner, 2002). Though there are other acceptable methods to determine success, the return on investment (ROI) is the industry standard of choice. We know how they do it, we now know how they measure it, but does it work? Research indicates that if industry training is conducted regularly a company could increase productivity by 2% translating into a

100% net return on investment. An investment by the company of $1500 dollars per employee should increase higher gross profit margins by 24% and 218% higher income per employee (Conner, 2002).

The most significant finding in this review of literature is the rapid growth of industry based training- meeting the needs of the employee and the business. As education evolves, the needs of public education will need to be met and one of those avenues will be through the method of effective delivery. Computer and technical skills along with critical thinking skills become foremost goals of secondary education. Cooperative partnerships between business and higher education will assist the institution in providing education that meets the global job market enhancing the traditional forms of education.

The dairy industry is no different than industry as a whole in the United States and for that matter southwest Wisconsin. As this dairy industry evolves, the need for skilled labor is becoming increasingly necessary within our industry. Most technical colleges and universities will educate/train students to fit the needs within the limitations of the program. Southwest Tech is limited to classroom simulations and area farm field trips to meet the needs of basic and semi-advanced needs of the students. This researcher prefers to call it a three tier approach to education. The first tier provides the basis of knowledge. A student enrolled in cattle reproduction class learners about the anatomy and physiology of bovine reproduction, gestation, and hormones. The second tier provides the management skills to deal with diseases of the reproductive tract, management protocols that assist in manipulation of pregnancy and the hormones necessary for good reproductive health. The final tier will provide the skills

needed to round out reproductive management. SWTC requires each of the students to take an artificial insemination of dairy cattle class. This class is offered as a collaborative effort with Select Sires. Advanced Reproductive techniques also falls into the third tier of education, this course will provide the student a new skill set in manipulating the reproductive tract of cattle. Each new skill set gained by a student will advance their ability to gain employment in the dairy industry.

Institutional Collaboration

Kirkwood College chose to create partnerships when their budgets shrunk, state-aid dwindled and increasing numbers of students chose to attend their institution. They identified their "friends" in industry, higher education and alumni and made them their partners. Post-secondary education tends to take the easy way out; cutting programs and resources to ride out budgetary shortfalls (Nielson, 1997). Rather than become the be-all means to each student's education, the relationships forged in post-secondary education fills gaps when the institution isn't in the position to offer curricula to meet the needs of all of their customers.

Sandra Kerka has identified six critical elements of successful partnerships in education: Environment, Vision, Membership, Procedure, Resources and Communication (Kerka, 1997).

Environment is described as the beginning step. This time frame is considered the discovery phase. Each partner tests the water to discover if each is compatible and has the same ideas to benefits its customer. In this case our customer is the student.

Vision is environment's close second step. At this point each institution must determine if each has the same goals for their customers. In the environment at SWTC, skills and education are provided to students to advance their ability to gain employment through competency-based education. The baccalaureate program provides education through a theory-based approach. Each program values life-long learning as a benchmark to successful outcomes. Regional concepts can also play a role in vision; the farming practices and values of southwest Wisconsin are compatible to the programming offered at our regional institutions. The mission of each institution should also be given consideration.

As soon as the first two elements have been analyzed, membership and procedure can be considered and will go hand in hand as discussions evolve. Membership determines the players that will be involved in the process. In this case special consideration should be given to administration, faculty and staff. These individuals should have direct involvement in each division's programming. During curriculum development the membership can be assigned duties they will fulfill throughout the process. Players and their roles could be as follows: the lead instructors, Dean, Department heads and other staff that may be needed to administer intended curriculum development should be included in the makeup of the committee. Intimate knowledge of subject matter will assist in determining who will author collaborative curriculum development. During the procedure stage responsibilities can be assigned to membership that has been previously determined. During curriculum development, the originators of the curriculum will be play key roles. They will be developing competencies, outcomes, criteria and conditions in which the student and instructor will use in the classroom and laboratory. Detail is important, as well as, content expertise. Faculty should take the

leadership role in this area as they possess the necessary content expertise, adding value and depth to the outcome. A situation that occurred in the technical college system was a curriculum writer was used to develop the classroom activities and assessments, often these individuals didn't have content expertise to draw from thus results lacked depth. Also, in the classroom, the activities and resources weren't available to the instructors which further confused the students. Administrative staff becomes the mouth piece and gate keepers during curriculum development; answering questions when they arise, updating curriculum periodically, and archiving outdated curriculum. The administration takes a limited role during the process of curriculum development; they generally oversee timelines and budgets, while directing the process as it evolves.

Finally, communication and resources can be considered. As the team has been gathered and given direction, honest communication becomes critical. During planning phases, formal communication will take place. For example, who writes curriculum for specific courses, how competencies will be determined, what texts and laboratory material will be needed, and who provides necessary monetary resources, timelines that need to be followed and who are the go-to people. Informal communication becomes a factor; time and distance don't always allow for expediency. Frequent informal communication can resolve issues that may not require debate and move the process along more quickly. Time for reflection is important to the overall outcome of the product. During communication, trust becomes the bedrock to build any successful collaboration. Laying all the cards on the table and taking out any hidden agendas will greatly enhance this process.

Resources, during a time of socio-economic downturns, generally bring groups of people together out of necessity. Faculty, curriculum and physical resources are all items that may be considered. Shared faculty helps ease financial strain while leveraging shared expertise in varied fields-a benefit to students. Physical resourses such as laboratories, technology and equipment are also considerations. Shared curriculum also is helpful; at SWTC shared curriculum improves the articulation process between baccalaureate and technical college programs.

Susan Guthrie and Anita Krsak of Lakeland Community College have developed several successful partnerships with NOVEL Education Academic Partnership (NEAP), Microsoft Cooperative and IBM AS/400 Division Partners to offer training to these companies in exchange for resources such equipment, computers and software. Locally, SWTC has established partnerships in agriculture for an exchange of services and facilities. Select Sires Cooperative of Waupun, Wisconsin provides our onsite training in Artificial Insemination for our students and local producers. This company provides the materials and instructors for this training service. Although, SWTC doesn't exchange monetary resources, this company sees this opportunity to glean students for entry level positions and the possibility of developing potential clients for future business opportunities-a worthwhile exchange between entities.

When under taking the task of building healthy relationships it must be recognized that with the successes there will be pitfalls, Approaches to Partnerships (EDRS, 1994) lists three potential factors that could derail a partnership. Those include denial of free market, loss of

autonomy and increased complexity of shared resources. Shared vision and commitment to a common goal coupled with communication tend to nullify many of these issues.

One of the biggest hurdles to cross with this articulation was acceptance of the technical diploma credits. Historically, the technical diploma credit was viewed as the hands-on credit that taught a skill but held little credence with baccalaureate programs. Research conducted in the 1970's concerning agriculture credits earned in the community college or vocational schools showed little flexibility between these schools and baccalaureate programs. Land Grant institutions felt that the rigor faced by the students enrolled in these programs lacked the fortitude found in a baccalaureate programs. The majority of the time students attending the community college seeking a baccalaureate degree were forced to start their education over upon admittance to the four year university system. Vocational schools found virtually no support from the Land Grant schools. Ironically, out of state students were given more latitude with credits earned in a community college over the in-state students. Many times a student seeking a baccalaureate degree had to rely on the course syllabus, instructor credentials and perseverance to gain admittance. Many times after these students were admitted they only received partial credit for previous credits earned. During this time, agriculture education credit transfer became a follow the leader situation as credits would be accepted if the Land Grant institution in that state accepted them in their programs (Jansen, 1970).

In 2005 the University of Ohio developed a program called the Career-Technical Credit Transfer (Sander, 2008). This program is a result of studies conducted in the late 1990's and

early 2000. Socio-economic changes in Ohio forced them to take a second look at a population of former students that studied a career path that lead to a job that may have evaporated because of the down turn in the economy. An example of one these career paths that has changed drastically in the past few years would be the automotive technician program. Many of these vocational career paths trained people to work on an assembly lines and when the down turn occurred they found that work-shifts on assembly lines closing down. This Career-Technical Credit Transfer now will create "pathways to a college degree and not treat vocational or technical training as an end unto itself" (Sander, 2008). Ohio's program now recognizes student's previous efforts in a vocational program. Although, every credit may not be accepted towards a baccalaureate degree it's a step forward for the student who previously would have had to start over if they wanted to obtain a degree.

Into 2001 SWTC began its own odyssey into the articulation web with UW-P. Conversations began between the administration and the lead faculty of the School of Agriculture and Dairy Herd Program. It was felt that a relationship could be developed between the two institutions and still maintain the mission of each campus-UW-P offering baccalaureate degrees and SWTC developing career path skills. This bridge (articulation agreement) would open doors of opportunities in agriculture that did not formally exist previously.

Courses, credits and syllabi were evaluated to measure the similarities between courses offered through each respective program. The common threads of subject matter provided the detail necessary to make the agreement reality. Other essential details included the instructional staff, NCA accreditation, and a formal state wide technical college curriculum.

The next dimension of collaboration is course offerings that take advantage of faculty, physical resources and curriculum. McDaniel and Claruddi describe the dispersed team model of collaboration which they developed in 1997 (McDaniels, 1997). Their model encourages collaboration to develop curriculum that is theme-centered and developed between participating instructors. This type of curriculum is delivered in short, fixed time periods with small groups of students. This team teaching method relies on collegial interaction between instructors in which students are able experience the expertise that each instructor brings to the table. The goal of this model encourages active learning, student engagement and integrated student thinking. As teachers, the ultimate goal for students is to achieve critical thinking skills. This model takes advantage of the ideals in student learning. The disadvantage of this model is the financial side. Collaboration of this nature requires considering resources of a financial nature, especially when more than one full time instructor is in the class room at a time. Studies have shown that collaborative efforts demonstrate a negative financial outcome for up to three years. Successful collaboration will eventually even out the bottom line past the five year time frame. In other words, when the success of collaboration through student enrollment increases so do monetary resources. Physical resources that have short shelf-lives, such as in-classroom learning material, software, equipment and buildings, are included in the equation as an extra burden added to the bottom line of the financial ledger. Support from the business sector in the forms of monetary and/or driven by economic need or public demand, likely will offset the demise of collaborative efforts; herein lies an opportunity to capitalize upon further chances of success of collaboration.

CHAPTER III

SUMMARY

An outcome summary of this course can be located in Appendix A of this report. The outcome summary contains the competencies, criteria and conditions that a student would expect to accomplish successfully when finished with this course.

Advanced reproductive techniques are a highly specified skill set. Learning the art and science of pregnancy diagnoses, reproductive abnormalities through palpation and ultra-sounds will not appeal to every student enrolled in an animal science, dairy science or pre-vet program. Those students that are pursuing or are already employed in the dairy industry and are working with dairy cattle reproduction will find this skill set applicable and useful on a weekly basis.

This class will require the pre-requisites of dairy cattle reproduction and artificial insemination. Without these two elements the over-all effectiveness in which student will able to complete the course would be severely limited. The format in which Advanced reproductive techniques, through collaboration of UW-P and SWTC, will be offered as a one credit course during winter session, spring break and/or summer break dependent upon the popularity of the class. Since this course is designed for a short time frame format the student can expect a fast paced, hands-on environment in which to work. Eighty percent of the class offering will be working with actual cows. While the other twenty percent, will deal with review of reproductive management schemes and classroom simulations.

The course will require a concerted effort by UW-P and SWTC as the vision requires the shared use of facilities, faculty, curriculum and course credit to be successful. A student taking this course could take the course through SWTC as a technical credit and earn a certificate at completion of the course. This class then would be transferable to UW-P as an elective class in the animal science program and could be considered as a part of their bachelor degree program. A student in the UW-P animal science program could take this course as an elective credit counting towards graduation. Either scenario leads to a win-win situation for the student. The student in the Dairy Herd program gains an employability skill, the UW-P student gains credit towards completion of a BS degree and an employability skill.

UW-P has agreed that their 200 cow dairy facility could potentially be the training center for this course. The cows and classroom at their Pioneer Farm location provides easy, convenient access for students on each campus as well as former students that live in Southwest Wisconsin. Should students need over-night accommodations the living and learning center would be available. Faculty employed at both SWTC and UW-P have training and expertise in dairy cattle palpation, pregnancy diagnoses and disease identification. Therefore, there would be no need to hire adjunct faculty to make this course a reality.

The WIDS curriculum will provide longevity for the course as it provides the when, how and what component of learner based education. Since the science of palpation has not drastically change in the last fifty years the current curriculum competencies should be relevant for some time. New advancements in technology and techniques can be easily incorporated into in the curriculum by development of new competencies, learning outcomes and criteria.

The longevity of the course would be dependent on interest from the students and retention of trained faculty. As the need for new faculty or a change in facilities becomes apparent the constant in this scenario will be the WIDS curriculum, the vision and the pathway to a successful collaborative effort.

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APPENDIX A

Advanced Reproductive Technologies

Course Outcome Summary

Course Information

Organization	Southwest Wisconsin Technical College
Developers	Jeff Dornink
Development Date	7/21/2008
Instructional Level	Continuing Education
Potential Hours of Instruction	18
Total Credits	1

Description

This course is designed for the student wishing to expand their skills in reproduction technology, specifically pregnancy diagnose and reproductive tract palpation.

Types of Instruction

Instruction Type	Contact Hours	Credits
	18	1

Prerequisites

Student should be proficient in artificial insemination of cattle.

Student should have successfully completed a bovine reproduction class.

Exit Learning Outcomes

Core Abilities

A. Solve problems

B. Work productively

Competencies

1. Palpate dairy cattle reproductive tracts

You will demonstrate your competence:

o through rectal palpation.

Your performance will be successful when:

o you palpate the cervix of a bovine with eighty five accuracy.

o you palpate the uterus of a non-pregnant bovine reproductive tract with ninety five percent accuracy.

o you palpate the uterus of a pregnant bovine reproductive tract with ninety five percent accuracy.

o you palpate the right ovary of a non-pregnant bovine reproductive tract with ninety five percent accuracy.

o you palpate the left ovary of a non-pregnant bovine reproductive tract with ninety five percent accuracy.

o you palpate the right ovary of a pregnant bovine reproductive tract with ninety five percent accuracy.

o you palpate the left ovary of a pregnant bovine reproductive tract with ninety five percent accuracy.

2. **Identify ovarian structures of dairy cattle**

You will demonstrate your competence:

o through rectal palpation.

Your performance will be successful when:

o you identify the right ovary of a anovulatory bovine with ninety five percent accuracy

o you identify the left ovary of a anovulatory bovine with ninety five percent accuracy.

o you identify the right ovary of a ovulatory bovine with ninety five percent accuracy.

o you identify the left ovary of a ovulatory bovine with ninety five percent accuracy.

o you identify the right ovary of a pregnant bovine with ninety five percent accuracy.

o you identify the left ovary of a pregnant bovine with ninety five percent accuracy.

o you identify the corpus luteum on the right ovary of a non-pregnant bovine.

o you identify the corpus luteum on the left ovary of a non-pregnant bovine.

o you identify the corpus luteum on the right ovary of a pregnant bovine.

o you identify the corpus luteum on the left ovary of a pregnant bovine.

3. **Evaluate dairy cattle reproductive tracts for pregnancy**

You will demonstrate your competence:

o through rectal palpation.

o through ultrasound palpation.

o through class room simulation.

Your performance will be successful when:

- o you identify a viable 35 day pregnancy with 95 percent accuracy.
- o you identify a viable 45 day pregnancy with 95 percent accuracy.
- o you identify a viable 55 day pregnancy with 95 percent accuracy.
- o you identify a 60 day pregnancy with 95 percent accuracy.
- o you identify a 90 day pregnancy with 95 percent accuracy.
- o you identify a heartbeat of a 35 day fetus with 95 percent accuracy.

4. **Evaluate dairy cattle reproductive tracts for ovarian abnormalities**

You will demonstrate your competence:

- o through rectal palpation
- o through ultrasound technology
- o through class room simulation

Your performance will be successful when:

- o you identify a luteal cyst correctly.
- o you identify a follicular cyst with 95 percent accuracy.
- o you identify a retained corpus luteum with 95 percent accuracy.
- o you identify a mummified fetus with 95 percent accuracy.
- o you identify a pyometra with 95 percent accuracy.
- o you identify a metritis with 95 percent accuracy.
- o you identify anestrus conditions of cattle with 95 percent accuracy

5. **Utilize enzyme assay to determine pregnancy**

You will demonstrate your competence:

- in the laboratory at the farm

Your performance will be successful when:

- you collect a milk sample correctly using antiseptic methods.
- you identify cattle to analyzed using record keeping methods.
- you collect blood samples using antiseptic methods.
- you collect urine samples using antiseptic methods.
- you choose the correct enzyme assay for milk.
- you choose the correct enzyme assay for blood testing.