TO: Graduate Council
FROM: Doris J. Baker
RE: Responses to concerns addressed by the Medical Center Academic Council, Nov 27, 2001

1. There is only one core faculty member of full status in the Graduate School (Dr. Doris J. Baker)
   o Dr. Vincent Gallicchio has been added to the core faculty. Dr. Gallicchio is the DGS for the graduate degree programs in Clinical Sciences. He will instruct in the RLS research course (see Appendix G) for a complete list of core, clinical and contributing faculty members).
   o One CLS faculty member will retire in June, 2002. This position will be used to hire a regular title Ph.D. faculty member for RLS. This faculty member will immediately seek full status in the Graduate School.

2. What is the time line for a full time student completing the RLS MSc? What is the time line for a part-time student completing the RLS MSc?
   o The programs are being revised to reduce time on campus. See Summary Tables for RLS Courses for:
     ▪ Example of time line for full time student completing the MSc
     ▪ Example of time line for part-time student completing the MSc
     ▪ Time line for RLS Graduate Certificate

3. Required science courses are listed as TBD in the discussion and in tables in the Summary Tables section which lists RLS courses. The added time-line for RLS students explains that TBD courses will be selected, as needed for required background for the RLS major, in consultation with the student’s advisory committee.
   o Courses to be determined will be selected from the areas of:
     ▪ Genetics
     ▪ Cell and Molecular Biology
     ▪ Microbiology
     ▪ Endocrinology
     ▪ Other

During a meeting with Dean Kalika on December 11, 2001, he expressed concern that students did not have sufficient time to reflect on modular course material prior to final examinations. In response to this concern, we have added:
   o A calendar for delivery of modular courses (Appendix I)
   o Syllabi for modular courses, outlining dates for presentation of didactic and laboratory material and final examinations.
October 17, 2001

MEMORANDUM

TO: James W. Holsinger Jr., MD, Chancellor
   UKMC

FR: Lori S. Gonzalez, Ph.D.
    Associate Dean for Academic Affairs

RE: Major revision of Reproductive Laboratory Science track of Master of Science in Clinical Sciences Program & Proposal for Graduate Certificate in Reproductive Laboratory Science.

The College of Allied Health Professions Academic Affairs Committee recommends approval of the following revision of the Reproductive Laboratory Science (RLS) track of the Master of Science in Clinical Sciences program and the proposal for a graduate certificate in RLS. Details of each are presented below.

The RLS MS Degree Program

Background: The Reproductive Laboratory Science (RLS) track of the Master of Science in Clinical Sciences was approved in Spring, 2001 as a traditional education program with coursework completed on campus in Lexington, KY in typical 16-week semesters. The RLS track was included in the MSc degree program because of the documented need for formal education in reproductive laboratory science. In addition, the CLS Division had both the faculty expertise and experience from the RLS post-baccalaureate certificate courses to develop and offer graduate education in the nascent discipline. The track was established to provide graduates in the field of reproductive laboratory science to meet the national need for trained embryologists for the nearly 400 assisted reproductive technology (ART) laboratories in the United States. Unfortunately, the track, as approved and presently offered, is not responding to this need. The core courses do not adequately prepare students for the RLS track. Also, the majority of individuals interested in completing this education are already employed in ART laboratories and therefore require a more accessible program for obtaining an M.S. degree. Although the Division has the only university-approved program in the United States, students are opting for programs in Europe, in spite of increased costs associated with foreign travel. European programs are based on either distance and/or modular formats and the entire curricula are designed for the RLS discipline.

The program was developed as part of a joint degree program with the University of Louisville and was designed to serve four different tracks 1) hematology & transplantation medicine; 2) pathology assistant; 3) clinical laboratory management; and 4) reproductive laboratory science. Tracks in hematology & transplantation science and reproductive laboratory science were to be offered solely at the University of Kentucky. A core was developed to loosely link these four tracks and included courses for tracks at UofL. In early 2001, the University of Louisville pulled out of the program and the proposal was edited to remove all references to UofL. However, the issues with the core and other curricular needs were not addressed at that time. This proposal is designed to remove duplication and to offer a curriculum to better meet the needs of graduates in the RLS track.
Revisions:

1. Statistics requirement: The current curriculum satisfied the statistics requirement through completion of CSC 605. The new proposal calls for a broadening of the statistics requirement to allow for other courses including STA 570 to be used to satisfy this requirement.

2. Physiology requirement: The current curriculum satisfied the physiology requirement through completion of CSC 600. The new proposal calls for a broadening of the physiology requirement to allow for other courses including NUR 653, PHR 952 and others to be used to satisfy this requirement.

3. Policy & Ethics: The current curriculum requires two courses, CSC 601 Health Care Policy & Ethics and CSC 603 Quality Assurance and Laboratory Regulations. The new proposals requests that these two courses be dropped and CSC 625 Policy, Management, Ethical and Legal Issues in Assisted Reproduction be used to satisfy this requirement since it includes content essential for RLS students.

4. Related Science: The new proposal calls for a minimum of 3 to 6 graduate credit hours in a related science (from areas of genetics, endocrinology, cell and molecular biology, etc) based on student need.

5. Research: The new proposal calls for research methods to be covered in a course geared for RLS students CSC 630 RLS Research, rather than the course in the current curriculum, CSC 604 Research Methods for the Clinical Sciences.

These changes will provide for a more appropriate curriculum that better meets the needs of students and the work settings that will employ these graduates.

The RLS Graduate Certificate

Background: The proposal for the Graduate Certificate in Reproductive Laboratory Science (RLS) was approved by the CAHP Academic Council in Fall, 2001 by the Graduate School on April 24, 2001. Since the proposal did not reach the Senate until early June, 2001, it was not possible to receive formal approval for Summer, 2001. With assistance from the Graduate School, the RLS faculty offered the Graduate Certificate as a pilot for the 8-week Summer session, 2001. The Graduate Certificate program was successful, and graduates are now employed in assisted reproductive technology (ART) laboratories. However, the current nine credits were not adequate for the material that must be covered. Following a review of the course content, the RLS faculty decided that the material should be offered in 12 credit hours, a time frame more consistent with other graduate certificate programs offered by the University of Kentucky. Since courses were similar for both the RLS track in the MSc program in Clinical Sciences and the RLS Graduate Certificate, revisions be made to accommodate both groups of students in the same class. Since students for the graduate certificate and the RLS track for the MSc are from different populations, there is not a competition among programs. The majority of students for the MSc are individuals with a B.S. degree in science who are not yet employed or those with an undergraduate degree who are currently employed in ART laboratories. Candidates for the RLS Graduate Certificate are primarily individuals who already hold graduate degrees, but who need the clinical training in order to be marketable. Combing the two groups for instruction is logical in terms of both efficiency and economy.

Revisions:

1. RLS 600 Andrology (2 credits)

Addition of

CSC 615: Reproductive Laboratory Sciences
MEMORANDUM

TO: Deans, Department Chairs, and Members of the University Senate
FR: Lori S. Gonzalez, Ph.D.
    Associate Dean for Academic Affairs
RE: Major revision of Reproductive Laboratory Science track of Master of Science in Clinical Sciences Program & Proposal for Graduate Certificate in Reproductive Laboratory Science.

The College of Allied Health Professions Academic Affairs Committee recommends approval of the following revision of the Reproductive Laboratory Science (RLS) track of the Master of Science in Clinical Sciences program and the proposal for a graduate certificate in RLS. Details of each are presented below.

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Revisions:

1. RLS 600 Andrology (2 credits)
   Addition of
   CSC 615: Reproductive Laboratory Sciences
**TABLE OF CONTENTS**

Curriculum Changes for RLS track in the MSc

<table>
<thead>
<tr>
<th>Appendix A</th>
<th>Embryology Training Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix B</td>
<td>Summary of Costs Associated with On-Site Training</td>
</tr>
<tr>
<td>Appendix C</td>
<td>ASRM Letter of Support</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Table: Status of Current RLS Students</td>
</tr>
<tr>
<td>Appendix E</td>
<td>Correspondence Re: RLS via Distance Learning</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Responses to “Survey in Progress”</td>
</tr>
<tr>
<td>Appendix G</td>
<td>RLS Faculty</td>
</tr>
<tr>
<td>Appendix H</td>
<td>Course syllabi</td>
</tr>
<tr>
<td>Appendix I</td>
<td>Calendar for Delivery of Modular Courses</td>
</tr>
</tbody>
</table>

Application for Course Changes

Distance Learning Forms

Curriculum Changes for RLS Grad Cert

<table>
<thead>
<tr>
<th>Appendix A</th>
<th>Original proposal for Graduate Certificate in RLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix B</td>
<td>Graduate School approval RLS Graduate Certificate</td>
</tr>
</tbody>
</table>

Summary Tables for RLS Courses

- Courses for RLS Grad Certificate & MSc track in RLS
- Courses in RLS for Grad Certificate & MSc track:
  - delivery method
- Time Lines for Full-Time and Part-Time students in the MSc track for the for RLS Graduate Certificate

Letters of Support

- Vincent Gallicchio, Ph.D., DGS
- Raymond Olesinski, Ph.D., CLS Program Director
CURRICULUM CHANGES FOR RLS TRACK IN MSc IN CLINICAL SCIENCES

Note: All current courses to remain on the books; only the RLS track will be revised; the hematology/transplantation medicine will remain as is.

Background
The Reproductive Laboratory Science (RLS) track of the Master of Science in Clinical Sciences was approved in Spring, 2001 as a traditional education program with coursework completed on campus in Lexington, KY in a typical 16-week semester. The RLS track was included in the MSc degree program because of the documented need for formal education in reproductive laboratory science. In addition, the CLS Division had both the faculty expertise and experience from the RLS post-baccalaureate certificate courses to develop and offer graduate education in the nascent discipline. The track was established to provide graduates in the field of reproductive laboratory science to meet the national need for trained embryologists for the nearly 400 assisted reproductive technology (ART) laboratories in the United States. Unfortunately, the track, as approved and presently offered, is not responding to this need. The core courses do not adequately prepare students for the RLS track. Also, the majority of individuals interested in completing this education are already employed in ART laboratories and therefore require a more accessible program for obtaining an M.S. degree. Although we have the only university-approved program in the United States, students are opting for programs in Europe, in spite of increased costs associated with foreign travel. European programs are based on either distance and/or modular formats and the entire curricula are designed for the RLS discipline.

Background for Present Core
The MSc in Clinical Sciences was developed as a joint effort between two universities, the Department of Clinical Laboratory Science at the University of Louisville and the Division of Clinical Laboratory Sciences at the University of Kentucky. The core of this program was designed to provide general courses for four different tracks: (1) hematology and transplantation medicine; (2) pathology assistant; (3) clinical laboratory management; and (4) reproductive laboratory science. In order to avoid competing with established education programs in management at the University of Kentucky, it was agreed that the clinical laboratory management track would only be offered by the University of Louisville. It was further agreed that because the expertise for reproductive laboratory science was at the University of Kentucky, the RLS track would only be offered by U.K. The core, the hematology/transplantation track and the pathology assistant track would be offered jointly by the two universities. The core focused on courses in pathology and laboratory medicine, since all tracks except RLS were part of that general discipline. Several of the core courses were developed specifically to prepare students for the clinical laboratory management track since it had been previously documented that a significant number of laboratory professionals were interested in that particular curriculum.
Between the time the University of Louisville and the University of Kentucky initiated the proposal for a joint MSc in Clinical Sciences (1997) and the approval of the program by the University of Kentucky, (2001) several significant changes occurred. In 1998 the track in pathology assistant was dropped from the proposal due to lack of support from the Department of Pathology and Laboratory Medicine. The College of Allied Health at the University of Louisville was closed in 2000, forcing their Department of Clinical Laboratory Sciences to withdraw from the Clinical Sciences graduate proposal. Following these changes, and in the interest of time, the Division of Clinical Laboratory Sciences removed all references to the University of Louisville from the proposal and submitted the document to the University of Kentucky for approval. In Spring, 2001, the MSc in Clinical Sciences was approved by the University of Kentucky for the two remaining tracks, hematology/transplantation medicine and reproductive laboratory science.

The MSc in Clinical Sciences is now being offered for these two tracks. Core courses, which were initially proposed primarily for the management and pathology assistant tracks, still remain although the tracks do not exist. For example, Human Pathophysiology (CSC 600) is required without an option for a more general physiology course. Epidemiology and Biostatistics (CSC 605) was included instead of a more generic graduate statistics course, to support the pathology assistant track. This specific requirement was included for the pathology assistant track and was not removed when it was determined that the track could not be offered. Several courses, important to the management track remained part of the core. Both Health Care Policy & Ethics (CSC 601), and Quality Assurance and Laboratory Regulations (CSC 603), while beneficial for students in any track, emphasize clinical laboratory management.

Core courses are specific and were originally intended to remain within the CLS division or department and be taught by CLS faculty. The core was designed based on faculty expertise and availability from the Department of CLS at the University of Louisville, and the Department of Pathology & Laboratory Medicine and the Division of CLS at the University of Kentucky. This situation has changed dramatically. Faculty are no longer available to contribute to the program from either the University of Louisville or the Department of Pathology and Laboratory Medicine, leaving both the RLS and hematology/transplantation medicine specialty tracks and the core to be taught by CLS faculty at the University of Kentucky.

In the end 19 hours of core courses were designed, at least in part, for tracks which are not being offered, and many of these courses do not support the RLS track. In fact materials included in the course developed specifically for the reproductive laboratory science track, CSC 625, Policy, Management, Legal and Ethical Issues in Assisted Reproduction, also are included in the core courses CSC 601, Health Care Policy and Ethics, and CSC 603, Quality Assurance and Laboratory Regulations. This duplication was recently questioned by the University Senate committee charged with reviewing the proposal for the RLS Graduate Certificate.
Core Changes
The core now needs to be revised for the RLS track to better prepare the student for the specialty. While CSC 601 and CSC 603 should not be required for the RLS track, there is a need for more science-based courses to prepare students for the specialty. This need was documented when the Graduate Certificate was taught in Summer, 2001. Two of the four students in the RLS Graduate Certificate were CLS seniors or graduates and the remaining two students held graduate degrees in science. The CLS students lacked appropriate backgrounds in genetics, cell and molecular biology, and endocrinology. This deficiency made it difficult for the students with CLS backgrounds to compete with students with a more traditional background in science.

For the RLS track, the core should be revised to include the following:

- 3-4 credit hours in graduate statistics could be satisfied with CSC 605, Epidemiology and Biostatistics (current core course) or courses cross-listed, including STA 570, Basic Statistical Analysis
- 3-4 credit hours in graduate physiology could be satisfied with CSC 600, Human Pathophysiology (current core course), or NUR 653, Pathophysiology or PHR 952 (current cross-list) and PHR 953, Diseases Processes I and II or PAS 853, or others (TBD)
- Drop the requirement for CSC 601* (Health Care Policy & Ethics) and CSC 603* (Quality Assurance and Laboratory Regulations) since the content important for RLS students is included in CSC 625, Policy, Management, Ethical and Legal Issues in Assisted Reproduction.
- Add the requirement for a minimum of 3-6 graduate credit hours in related science (from areas of genetics, endocrinology, cell and molecular biology etc), based on student need, as determined by the RLS Admissions Committee
- Include key content from CSC 604, Research Methods for the Clinical Sciences as part of CSC 630, RLS Research for M.Sc.
- CSC 602, Clinical Sciences Seminar, taken once since this is a MSc degree

With these revisions students in both the hematology/transplantation medicine track and the RLS track of the MSc program in Clinical Sciences will share core courses in physiology and statistics. Although students in both tracks would complete courses in seminar and in research methods, distribution and specificity of the content for these courses will be redistributed. The seminar course would be made specific for RLS (CSC 628) and selected content from the Research Methods for the Clinical Sciences (CSC 604) will focus on the RLS discipline and will be included in RLS Research (CSC 630).
**RLS Track Changes**

Experience with the RLS Graduate Certificate during Summer, 2001 also revealed the need for a change within the RLS track of the MSc degree program. The two non-CLS students in the RLS Graduate Certificate had not had courses in microbiology. Since many of the causes of reproductive failure are due to microorganisms, and since laboratory contamination and spread of infectious disease are primary concerns in the ART laboratory, a background in reproductive microbiology is essential. Changing CSC 623, Reproductive Immunology to include microbiology (new course CSC 618, Reproductive Immunology & Microbiology) as well would satisfy this requirement. Since RLS track students would not complete CSC 604, Research Methods for the Clinical Sciences, this content would be incorporated in CSC 630, RLS Research.

**Delivery Method Changes**

The need for formal education in RLS is well established. There is a documented shortage of trained embryologists in the United States with approximately four positions for every trained professional (Appendix A; ASRM Embryology Training Survey). Problems and costs associated with on-site training also is well documented (Appendix B). Formal education in RLS is supported in general by professionals in the field as evidenced by a formal letter from the leading professional organization, the American Society for Reproductive Medicine (Appendix C; ASRM letter) and the employment record of our certificate program graduates (Appendix D, table).

Although need is established, and the program is now university-approved and available, accessibility for individuals most interested in pursing the MSc in RLS remains a concern. The majority of individuals wishing to receive a degree in RLS or embryology are employed in ART laboratories and are unable to leave their positions to pursue a traditional graduate program (see Appendix E; correspondence from prospective students and Appendix F; results of survey regarding distance learning and modular delivery options for the RLS track).

To respond to the need for distance education, and to make the RLS track more accessible, the following modifications are being proposed:

- Develop 3 one-credit hour lecture courses, which must be completed prior to more advanced RLS courses, for delivery via distance learning
  - CSC 615 Reproductive Laboratory Science
  - CSC 616 Andrology
  - CSC 617 Reproductive Immunology & Microbiology

  Note: Laboratories for CSC 615, 616 and 617 will be included in the on-campus course, CSC 618, Laboratories in Andrology, Immunology & Microbiology.
• Offer the advanced, and laboratory intense, campus-based RLS courses in a modular format of 1-3 week sessions. Since modular units will contain large amounts of didactic material and student laboratories will be limited to practice with animal oocytes and embryos, the following compensations will be incorporated:
  o Students will receive reading materials prior to the commencement of campus modular classes.
  o The final exam for CSC 621 and CSC 624 will be given at the end of week 8, following tours of ART labs and, for the Graduate Certificate students, also following the clinical practica, to give students:
    ▪ Time to assimilate the material presented during weeks 2-4
    ▪ The opportunity to correlate didactic material with clinical experience

• Develop flexible options for the RLS research project (e.g. individuals who are already working in an ART laboratory, and have a qualified Ph.D. director, could negotiate with U.K. to complete parts of their research in the home lab).

Please refer to Appendix G for RLS faculty and clinical sites.

**Revised Curriculum Meets University Graduate School Requirements**

The proposed curriculum revisions for RLS meet university requirements for a master’s degree Plan B (non-thesis) (Reference: *University of Kentucky Graduate Bulletin, page 22: Thesis/Non-Thesis Options*). The bulletin states that candidates for the master’s degree will have a major area (defined usually as an academic department) and must take at least 2/3 of the course work in this area; the other 1/3 may be taken in this area or in related graduate areas. Students in the RLS track will have their major area in Clinical Sciences. At least 2/3 of the courses will be in this area; less than 1/3 will be taken in a related graduate area in math and science. As required by the Council of Postsecondary Education, students will complete at least one-half of the minimum course requirements (excluding thesis, practicum or internship credit) in the major or core area with three-fourths of these at the 600- to 700-level. Students in the RLS track will complete at least one-half of the minimum course requirements (excluding practicum) in the CSC core area with at least three-fourths of these at the 600- to 700-level.

**Summary**

In summary, the following changes would make the program more successful and allow the recruitment of larger numbers of students:

• revise core and make specific for RLS track
• revise RLS track to include additional, needed courses (e.g. microbiology)
• modify delivery method to make more RLS track more accessible
  o distance learning for 3 courses
  o modular delivery for campus-based courses
  o flexibility for research projects
### RLS courses in MSc degree in Clinical Sciences

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<tr>
<th>CURRENT</th>
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<td>NON-RLS Courses</td>
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<td><strong>Course #</strong></td>
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<td><strong>Total for Non-RLS courses</strong></td>
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<td>21 Credit hours</td>
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| **Total for Non-RLS courses** | 21 Credit hours | 11-16 Credit hours |
| RLS Courses |  |  |  | PROPOSED |  |  |  | Explanation |
|-------------|-----------------|-------------|-----------------|-----------------|-----------------|-------------|-----------------|
| Course #    | Course Title     | Credit Hours | Delivery method  | Course #        | Course Title     | Credit Hours | Delivery Method  |                       |
| CSC 620     | Andrology        | 1           | Campus traditional | CSC 616         | Andrology        | 1           | DL             | Microbiology moved to CSC. General reproductive physiology segment moved to CSC. Labs moved to campus-based. |
| CSC 623     | Reproductive Immunology | 1 | Campus traditional | CSC 615         | Reproductive Laboratory Science | 1      | DL             | Option for distance learning; includes hands-on dissection of male & female reproductive systems. Fertilization & implantation. |
| CSC 621     | Embryology       | 3           | Campus traditional | CSC 621         | Embryology & ART  | 3           | Campus modular | Includes hands-on dissection of male & female reproductive systems. Includes distributed learning courses in CSC. |
| CSC 624     | Gamete & Embryo Cryopreservation | 1 | Campus traditional | CSC 624         | Gamete & Embryo Cryopreservation | 1 | Campus modular |                       |
| CSC 625     | Policy, Ethical & Legal in Assisted Reproduction | 2 | Campus traditional | CSC 625         | Mgt, Policy, Ethical & Legal Issues in ART | 2 | Campus modular |                       |
| CSC 626     | Clinical Practicum in Andrology | 2 | Clinical Andrology lab | CSC 626         | Andrology Clinical Practicum | 2 | Clinical Andrology lab |                       |
| CSC 627     | Clinical Practicum in ART | 3 | Clinical ART lab | CSC 627         | ART Clinical Practicum | 3 | Clinical ART lab |                       |
| CSC 630     | RLS Research for MS | 4 | Campus traditional | CSC 630         | RLS Research     | 3-5          | Campus traditional or campus + ART lab | Students already in ART may complete portions of the project in their current ART lab under the supervision of a qualified lab director; UK faculty member will direct the research project and collaborate with the research team. |

Total for RLS courses: 18-20 Credit hours

19-22 Credit hours
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<th>Total for MSC</th>
<th>39-41 Credit hours</th>
<th>30-38 Credit hours</th>
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</table>

Distributive learning courses will be available on a semester basis. Modular units will be offered during the 8-week Summer session.

**Admissions Criteria:**
Selective admissions:
- Meet requirements for Graduate School admission to the University of Kentucky
- Bachelor’s degree in Clinical Laboratory Sciences (Medical Technology)
  OR
- Bachelor’s degree in science with acceptable laboratory experience
  AND
- GRE scores (minimum TBD)
  AND
- Minimum GPA = 2.75

**Acceptance will be based on:**
- Interview score with CSC Admissions Committee
## Status of RLS Graduates

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th># Graduates</th>
<th># Graduates Employed in RLS*</th>
<th># Graduates with offers in RLS</th>
<th># Graduates declined jobs in RLS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>Seminar in RLS</td>
<td>11</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1998</td>
<td>Graduate Courses in RLS (no clinical practica)</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1999</td>
<td>Post-baccalaureate certificate in RLS</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>2000</td>
<td>Post-baccalaureate certificate in RLS</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>2001</td>
<td>Graduate Certificate in RLS</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

*Not all graduates sought employment in RLS.

**Graduates unable or unwilling to leave KY.
Core Faculty
(All served as faculty for the post-baccalaureate RLS program 1998-2000 and the RLS Graduate Certificate, 2001)

**Doris J. Baker**, Ph.D., HCLD (ABB), MT(ASCP) Associate Professor & Director, Reproductive Laboratory Science Programs, Department of Clinical Sciences, University of Kentucky. (Full member of Graduate faculty).

**Kim Campbell**, M.S., MT(ASCP), Medical Instructional Specialist; Adjunct Faculty; Education & Laboratory Coordinator for RLS, Department of Clinical Sciences, University of Kentucky.

**Vincent Gallicchio**, Ph.D., MT(ASCP), Professor, Departments of Clinical Science and Internal Medicine, Director, Graduate Studies, Master’s and Doctorate Program in Clinical Sciences, and Associate Dean for Research, College of Allied Health Professions, University of Kentucky. (Full member of Graduate faculty)

**Julie A. Ribes**, M.D., Ph.D., Assistant. Professor of Pathology, Director of Clinical Microbiology, Dept. of Pathology; Medical Director for Reproductive Laboratory Science & Clinical Laboratory Sciences, Department of Clinical Sciences, University of Kentucky. (Associate member of Graduate faculty).

**Jeannine Witmyer**, Ph.D., Director of Embryo and Gamete Cryopreservation, Boston IVF, Waltham, MA, Adjunct Assistant Professor & Embryology Faculty for RLS, Department of Clinical Sciences, University of Kentucky. (Associate member of Graduate faculty).

Note: Faculty with full membership in the Graduate School will increase during this academic year. One CLS faculty member will retire June 30, 2002. The position will be filled with a regular title RLS faculty able to obtain full membership in the Graduate School. Dr. Julie Ribes will be promoted to full Graduate Faculty when she receives tenure in 2002 (currently under review). Since this is a non-thesis degree, RLS lecturers, who are full members in the Graduate School, may volunteer to serve on the student’s advisory committee.
Faculty: Lecturers
(Many served as lecturers for the Post-Baccalaureate Certificate 1998-2000 and the RLS Graduate Certificate, 2001)

Paul Bachner, M.D. Chairman and Professor, Department of Pathology & Laboratory Medicine, University of Kentucky Chandler Medical Center, Lexington, KY; President, College of American Pathologists

Rita Basuray, Ph.D., HCLD, (ABB), Assistant Director, A-ART Program & Associate Professor, Dept. of Ob-Gyn, Washington University School of Medicine, St. Louis, MO

Joyce Beaulieu, Ph.D., Associate Research Professor, Center for Health Services Management & Research, Univ. of Kentucky

Erica Behnke, Ph.D., HCLD(ABB), Director, Center for Reproductive Studies, Christ Hospital, Cincinnati, OH

Maria Bertero, M.D., HCLD(ABB), Director of Embryology and Reproductive Endocrinology, Central Baptist Hospital, Lexington, KY

Melanie Freeman, Ph.D., CLDir(NCA), Director, Embryology Laboratory, Nashville Fertility Center, Nashville, TN

Deborah French, BHS, MT(ASCP), Andrology Supervisor, Kentucky Fertility and Gynecology, Lexington, KY

Dayong Gao, Ph.D., Associate Professor, Dept. for Biomedical Engineering; Joint appt. in Center for Biomedical Engineering and in the Dept. of Physiology, Medical College, Univ. of KY

Robert Homm, M.D., Medical Director, Art and Reproductive Services; Chair, Ob-Gyn Dept., Central Baptist Hospital, Lexington, KY; Assistant Clinical Professor, Dept. of Ob-Gyn, Univ. of KY

Lothar Jennes, Ph.D., Professor, Dept. of Anatomy & Neurology, Univ. of KY

Armand Karow, President, Xytex Corp., Augusta, GA & Professor Emeritus, Medical College of Georgia, Augusta, GA

Chris Langub, Ph.D., Associate Professor, Dept. of Internal Medicine, Univ. of Kentucky

Mary Mahony, Ph.D., HCLD(ABB), Assistant Professor, Dept. of Ob-Gyn; Reproductive Medicine; Director of Male Reproductive Biology Laboratories, Jones Institute, Eastern Virginia Medical School, Norfolk, VA
Karen McDowell, Ph.D., Associate Professor, Dept. of Veterinary Medicine, Univ. of Kentucky

Sue Overman, M.S., MT(ASCP), Supervisor, Clinical Microbiology, Univ. of KY Medical Center

Ok-Kyong Park-Sarge, , Associate Professor, Dept. of Physiology, College of Medicine, Univ. of Kentucky

Patricia Payne, Ph.D., MT(ASCP), Editor, Proteum, Inc.

Douglas Powers, Ph.D., HCLD(ABB), Scientific Director, Boston IVF, Brookline, MA, Professor, Dept. of Biology, Boston College, Chestnut Hill, MA & Adjunct faculty, Harvard Medical School.

Thomas Samuel, J.D., Associate Professor, Health Services Management, Univ. of Kentucky
Faculty: Lecturers (Many served as lecturers for the Post-Baccalaureate Certificate 1998-2000)

Seabolt, John P., EdD, MT(ASCP), Senior staff technologist, Clinical Microbiology, Univ. of Kentucky

Margaret Steinman, M.S., MT(ASCP), SBB, Adjunct Clinical Faculty and Medical Instructional Specialist, Division of Clinical Laboratory Science, University of Kentucky Chandler Medical Center, Lexington, KY.

George Veloudis, D.O., Reproductive Endocrinologist; Kentucky Fertility and Gynecology, Paris & Lexington, KY; Voluntary faculty for Physician Asst. Program, Univ. of KY

Clinical Faculty in RLS
(Many previously served as Clinical Faculty for the Post-Baccalaureate Certificate Program 1998-2000 and the RLS Graduate Certificate, 2001)

Martha Aguire, Ph.D., HCLD(ABB), Laboratory Director, Northern California Fertility Center, Roseville, CA

*Marlane Angle, Ph.D., HCLD(ABB), Director, Fertility Laboratories, Virginia Mason Medical Center, Roseville, CA

Bill Baird, Ph.D., HCLD(ABB), Reproductive Diagnostics, Inc. & Cryobiology, Inc., Columbus, OH; In Vitro Fertilization Lab, Akron, OH; Pittsburgh Cryobank of Reproductive Diagnostics, Pittsburgh, PA and In Vitro Fertilization Lab., Kettering, OH

Rita Basuray, Ph.D., HCLD(ABB), Assistant Director, A-ART Program & Associate Professor, Dept. of Ob-Gyn, Washington University School of Medicine, St. Louis, MO

Pedro Beauchamp, M.D., Medical Director, Pedro Beauchamp Reproductive Endocrinology & Infertility, Puerto Rico

*Erica Behnke, Ph.D., HCLD(ABB), Director, Center for Reproductive Studies, Christ Hospital, Cincinnati, OH

*Barry Behr, Ph.D., HCLD(ABB), Associate Director, Reproductive Endocrinology & Infertility, Stanford Univ. Medical Center, Stanford, CA

*Alberto Carrillo, Ph.D., HCLD(ABB), Director, IVF Laboratory & Assoc. Professor, Dept. of Ob-Gyn, University of Louisville School of Medicine, Louisville, KY

Elizabeth Critser, Ph.D., HCLD(ABB), MBA, Program Director, Advanced Fertility Institute, Clarian Health Partners, Indianapolis, IN
*Barbara Estes*, B.S., MT(ASCP), CLS(NCA), Supervisor, In Vitro Fertilization/Andrology Laboratory, Miami Valley Hospital, Dayton, Ohio  
*Melanie Freeman*, Ph.D., CLDir(NCA), Director, Embryology Laboratory, Nashville Fertility Center, Nashville, TN  
*Deborah French*, B.S., MT(ASCP), Andrology Supervisor, Kentucky Fertility and Gynecology, Lexington, KY  

*Armand Karow*, President, Xytex Corp., Augusta, GA & Professor Emeritus, Medical College of Georgia, Augusta, GA  
*Dolores Lamb*, Ph.D., HCLD(ABB), Associate Professor or Urology & Cell Biology and Director, Laboratory for Male Research & Testing, Baylor College of Medicine, Houston, TX  
*Maha Mahadevan*, Ph.D., D.V.M., HCLD(ABB), Associate Professor & Director, Arkansas Reproductive Technology Laboratory Dept. of Ob-Gyn, University of Arkansas for Medical Studies, Little Rock, Arkansas  
*Mary Mahony*, Ph.D., HCLD(ABB), Assistant Professor, Dept. of Ob-Gyn; Reproductive Medicine; Director of Male Reproductive Biology Laboratories, Jones Institute, Eastern Virginia Medical School, Norfolk, Va  
*Karen McDowell*, Ph.D., Associate Professor, Dept. of Veterinary Medicine, Univ. of Kentucky  
*Terry Olar*, Ph.D., HCLD(ABB), Director of Andrology & Embryology Charleston Area Medial Center, Charleston, WV, Assistant Professor, Dept. of Ob-Gyn, West Virginia Univ. School of Medicine, Charleston; Assistant Professor, West Virginia School of Osteopathic Medicine, Lewisburg, WV  
*Margaret Papadakis*, Ph.D., HCLD(ABB), Director, Reproductive Biology Laboratories, Dept. of Ob-Gyn, Carolina Medial Center, Charlotte NC  
*Haval Ravin*, Ph.D., CRCS, HCLD(ABB), Laboratory Director, Fertility Center of California, San Diego, CA  
*Charles Sims*, M.D., Medical Director, Fertility Center of California, Los Angeles, CA  
*Timothy Smith*, Ph.D., HCLD(ABB), Laboratory Director, North Hudson IVF< Englewood Cliffs, NJ  
*Samer Soubra*, B.S., CLS, Embryologist & Laboratory Supervisor, Reproductive Partners Medical Group, Inc. Long Beach, CA  
*Andras Szell*, Ph.D., HCLD(ABB), Laboratory Director, Alta Bates, IVF, Berkeley, CA  
*Carolyn Walters*, ARNP, Advance Practice Nurse Practitioner, (Ob-Gyn), Utica Park Clinic, Tulsa, OK  
*Jeannine Witmyer*, Ph.D., Director of Embryo and Gamete Cryopreservation, Boston IVF, Waltham, MA, Adjunct Assistant Professor & Embryology Faculty for RLS, University of Kentucky  

* sponsored students for clinical practicum for the post-baccalaureate RLS certificate program.  

Applications in progress; new sites being added
APPLICATION FOR NEW COURSE

1. College of Allied Health Professions
   Department/Division offering course: Clinical Sciences/Clinical Laboratory Sciences
   Date 9/25/01

2. Proposed designation and Bulletin description of this course:
   a. Prefix and Number CSC 615
   b. Title*Repro Lab Sci (RLS)
      *NOTE: If the title is longer than 24 characters (including spaces), write a sensible title (not exceeding 24 characters) for use on transcripts
   c. Lecture/Discussion hours per week 1
   d. Laboratory hours per week 0
   e. Studio hours per week n/a
   f. Credits 1

   g. Course Description
      The course includes basic cell biology and principles of genetics; a review of the male reproductive system including hormonal control, early development, spermatogenesis and fertilization; a review of the female reproductive system including hormonal control, early development, oogenesis, the menstrual cycle, fertilization and early implantation.
   h. Prerequisites (if any) none
   i. May be repeated to a maximum of N/A (if applicable).

4. To be cross-listed as
   Prefix & No.
   Signature, Chairman, cross-listing department

5. Effective Date: Summer, 2002 (semester and year)

6. Course to be offered (distance learning) Fall x Spring x Summer x

7. Will the course be offered each year? Yes x No (Explain if not annually)

8. Why is this course needed? Requirement for the Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science.

9. a. By whom will the course be taught? Doris J. Baker, Ph.D.
   b. Are facilities for teaching the course now available? Yes x No__
      If not, what plans have been made for providing them?

10. What enrollment may be reasonably anticipated? 15

11. Will this course serve students in the Department primarily? Yes x No__
    Will it be of service to a significant number of students outside the Department? Yes__ No x
    If so, explain
    Will the course serve as a University Studies Program course? Yes__ No x
If yes, under what Area?

12. Check the category most applicable to this course
   - traditional; offered in corresponding departments elsewhere;
   - relatively new, now being widely established
   - not yet to be found in many (or any) other universities

13. Is this course part of a proposed new program?  Yes___ No x
   If yes, which?

14. Will adding this course change the degree requirements in one or more programs?  Yes x  No___
   If yes, explain the change(s) below. Requirements for Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science will change. The addition of this, and other distance learning courses, will make the program more accessible and increase student enrollment.

15. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

   - Define the basic structure and function of the cell.
   - Describe the function of eukaryotic cellular organelles.
   - Describe the membrane fluid mosaic model and list functions of proteins and carbohydrates found on the cell membrane.
   - Distinguish glycolysis from the complete breakdown of glucose in the Krebs Cycle and the Electron Transport Chain (discuss total energy derived from each).
   - Distinguish diffusion, facilitated diffusion, osmosis and active transport.
   - Give the general properties of prokaryotic and eukaryotic cells. Give examples of each.
   - Discuss the levels of organization in multicellular organisms.
   - Project numbers and types of organelles for specialized cell (e.g. hepatocyte or spermatozoa).
   - Fully describe meiosis and describe why meiosis is a “reduction” division.
   - Compare and contrast mitosis and meiosis.
   - Describe the lactose inducer as a means of cell regulation.
   - List ways gene expression may be regulated in eukaryotes.
   - Distinguish pre-mRNA and mRNA. Describe how these differences may be a way to regulate gene expression in eukaryotes.
   - Define cell signaling and give examples.
   - Describe: gap junctions, occludens junctions and adherens junctions.
   - Describe the function of eukaryotic cellular organelles.
   - Detail the steps involved in transcription and translation.
   - Beginning with mRNA, outline the steps involved in the synthesis of a protein.
   - Demonstrate an understanding of the anatomy and physiology of the male reproductive system.
   - Fully describe spermatogenesis and distinguish spermatogenesis and spermiogenesis.
   - Demonstrate an understanding of the anatomy and physiology of the female reproductive system.
   - Explain hormonal control of spermatogenesis, oogenesis, ovulation and implantation.
   - Describe the sequential steps leading to fertilization (capacitation, zona binding, acrosome reaction).
   - Demonstrate an understanding of the anatomy and physiology of the early embryo.

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence that the
17. Within the Department, who should be contacted for further information about the proposed course?

Name    Doris J. Baker, Ph.D.                  Phone Extension  323-1100 ext. 241

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
Signatures of Approval:

Department of Chair: _______________________________ Date: ____________

Dean of the College: _______________________________ Date: ____________

Date of Notice to the Faculty: ______________

*Undergraduate Council: _______________________________ Date: ____________

*University Studies: _______________________________ Date: ____________

*Graduate Council: _______________________________ Date: ____________

*Academic Council for the Med Center: _______________________________ Date: ____________

*Senate Council: _______________________________

Date of Notice to Univ. Senate: ______________

*If applicable, as provided by the Rules of the University Senate

______________________________

ACTION OTHER THAN APPROVAL:
APPLICATION FOR NEW COURSE

1. College of Allied Health Professions Date 9/25/01

Department/Division offering course: Clinical Sciences/Clinical Laboratory Sciences

3. Proposed designation and Bulletin description of this course:

b. Prefix and Number CSC 617
   b. Title* Repro Micro & Immuno
   *NOTE: If the title is longer than 24 characters (including spaces), write
      a sensible title (not exceeding 24 characters) for use on transcripts

c. Lecture/Discussion hours per week 1

d. Laboratory hours per week 0

e. Studio hours per week n/a
   f. Credits 1

g. Course Description: A review of basic immunology will be covered including an overview of
   the organs, tissues and cells that comprise the immune system, different forms of immunity and
   the basis of the immune response. The reproductive immunology segment will focus on
   antibodies associated with infertility and reproductive failure, and also will include properties of
   the immune system during pregnancy. Microbiology will be covered as it pertains to assisted
   reproductive technology, focusing on: (1) causes of infertility and reproductive failure; (2)
   infectious agents that may be transmitted in the assisted reproductive technology (ART) laboratory
   and (3) prevention of contamination in the ART facility.

i. Prerequisites (if any) CSC 528, CSC 615 or consent of instructor
   i. May be repeated to a maximum of N/A (if applicable).

4. To be cross-listed as

   Prefix & No. Signature, Chairman, cross-listing department

5. Effective Date: Fall, 2002 (semester and year)

6. Course to be offered Fall X Spring ___ Summer X

7. Will the course be offered each year? Yes X No ___
   (Explain if not annually)

9. Why is this course needed? Requirement for the Reproductive Laboratory Science (RLS) track in
   the Master of Science in Clinical Science.

9. a. By whom will the course be taught? Doris J. Baker, Ph.D.

   b. Are facilities for teaching the course now available? Yes X No ___
      If not, what plans have been made for providing them?

11. What enrollment may be reasonably anticipated? 15
11. Will this course serve students in the Department primarily? Yes x No __

Will it be of service to a significant number of students outside the Department? Yes __ No x
If so, explain

Will the course serve as a University Studies Program course? Yes __ No x
If yes, under what Area?

12. Check the category most applicable to this course

traditional; offered in corresponding departments elsewhere;
relatively new, now being widely established
not yet to be found in many (or any) other universities

14. Is this course part of a proposed new program? Yes __ No x
If yes, which?

18. Will adding this course change the degree requirements in one or more programs? Yes x No __
If yes, explain the change(s) below.
Requirements for the Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science will change. The addition of this, and other distance learning courses, will make the program more accessible and increase student enrollment.

15. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

• Define basic immunology terms (examples: antibody, immunoglobulin, hapten)
• State organs, tissues and cells that comprise the immune system.
• Compare and contrast innate and adaptive immunity and discuss the mechanisms of defense each exhibits.
• Distinguish passive, active and adoptive forms of specific immunity.
• Draw the structure of an immunoglobulin, label functional parts.
• Describe the classes of immunoglobulins, including general structure, primary function and location.
• Describe the steps in antigen processing.
• Discuss the role of complement in an immune response.
• Describe antigen-antibody binding and list methods of detection.
• Discuss the immune response as related to implantation and early development in humans
• Explain why men do not have an immunological response to spermatozoa.
• Discuss antisperm antibodies as a cause of infertility and fetal loss.
• Distinguish microagglutinating, cytotoxic and immobilizing antisperm antibodies and determine the appropriate diagnostic testing for each.
• Discuss treatments for anti-sperm antibodies in both the male and the female.
• Discuss the use of serological methods for the detection of infectious disease. Give examples for organisms associated with infertility and reproductive failure.
• Reproduce a flow chart for the general classification of microorganisms (prions, viruses, bacteria, fungi, protozoa); include basic organism characteristics initial steps for identification.
• List normal flora for the male and female genitourinary tracts.
• List specific organisms associated with infertility and reproductive failure, including genital ulcer diseases, HVP infections, vaginitis syndromes, urethritis, cervicitis, prostates syndromes, and blood borne pathogens. For each organism, include a brief background, epidemiology, mode of transmission, clinical picture and diagnosis, laboratory diagnosis, preferred testing and treatment.

• Describe the preferred methods to prevent contamination in the ART lab, focusing on sterility, sterile technique, and sterilization methods types; potential toxicity of agents used for cleaning and disinfection should be included.

• List infectious agents that may be transmitted in the ART lab, and give the likely mode of transmission.

• Outline methods to prevent contamination and transmission of infectious agents in the ART laboratory, including screening for patients and donors and routine laboratory surveillance.

• Using information from CSC 528, identify organisms associated with reproductive failure.

• Based on case studies, distinguish normal flora from pathogenic organisms in specimens from the male and female genito-urinary tracts.

• Based on accuracy, accessibility, and cost, determine the preferred testing for each of the organisms associated with infertility and reproductive failure.

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence that the Community College System has been consulted. N/a

17. Within the Department, who should be contacted for further information about the proposed course?

Name  Doris J. Baker, Ph.D.  Phone Extension 323-1100 ext. 241

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
Signatures of Approval:

Department of Chair: ___________________________________________ Date: ____________

Dean of the College: ____________________________________________ Date: ____________

Date of Notice to the Faculty: __________________

*Undergraduate Council: ________________________________________ Date: ____________

*University Studies: ____________________________________________ Date: ____________

*Graduate Council: _____________________________________________ Date: ____________

*Academic Council for the Med Center: ____________________________ Date: ____________

*Senate Council: ______________________________________________

Date of Notice to Univ. Senate: _______________

*If applicable, as provided by the Rules of the University Senate

________________________________________________________

ACTION OTHER THAN APPROVAL:
APPLICATION FOR NEW COURSE

1. College of Allied Health Professions Date 9/25/01

Department/Division offering course: Clinical Sciences/Clinical Laboratory Sciences

4. Proposed designation and Bulletin description of this course:
   
c. Prefix and Number CSC 618  
b. Title* Labs in Andro, Repro Micro & Immuno
   *NOTE: If the title is longer than 24 characters (including spaces), write
   a sensible title (not exceeding 24 characters) for use on transcripts

   c. Lecture/Discussion hours per week 0  
d. Laboratory hours per week 2-3

e. Studio hours per week n/a  
f. Credits 1

g. Course Description: Andrology: Student laboratories will focus on semen analysis, sperm
   function tests, and preparation of partner and donor semen for artificial insemination. Advanced
   andrology procedures, including the sperm penetration assay and the hemi-zona assay, will be
   discussed and protocols provided. Reproductive Immunology: Students will perform procedures
   for detecting anti-sperm antibodies in semen and in serum. Sperm-cervical mucus testing and
   cross-testing will be performed using controlled donor semen and bovine cervical mucus.
   Reproductive Microbiology: Organisms associated with sexually transmitted diseases, infertility,
   and reproductive failure will be demonstrated with representative demonstrations consisting of:
   stained slide of bacteria, fungi and parasites and electron micrographs of viruses; organisms on
   appropriate culture media; examples of testing for identification. Students will use data from the
   demonstrations to develop summaries for the correct isolation and identification of these
   organisms.

   i. Prerequisites (if any) CSC 528, CSC 615, CSC 616, and CSC 617 or consent of instructor.

   i. May be repeated to a maximum of N/A (if applicable).

4. To be cross-listed as
   Prefix & No. Signature, Chairman, cross-listing department

5. Effective Date: Summer, 2002 (semester and year)

6. Course to be offered ( ) Fall __ ( ) Spring __ ( ) Summer x

7. Will the course be offered each year? Yes x No __
   (Explain if not annually)

10. Why is this course needed? Requirement for the Reproductive Laboratory Science (RLS) track in
    the Master of Science in Clinical Science.

9. a. By whom will the course be taught? Doris J. Baker, Ph.D.

   b. Are facilities for teaching the course now available? Yes x No __
      If not, what plans have been made for providing them?

12. What enrollment may be reasonably anticipated? 10
11. Will this course serve students in the Department primarily? Yes ☑  No __

Will it be of service to a significant number of students outside the Department? Yes __  No ☑

If so, explain

Will the course serve as a University Studies Program course? Yes __  No ☑

If yes, under what Area?

12. Check the category most applicable to this course

☐ traditional; offered in corresponding departments elsewhere;

☑ relatively new, now being widely established

☐ not yet to be found in many (or any) other universities

15. Is this course part of a proposed new program? Yes __  No ☑

If yes, which?

19. Will adding this course change the degree requirements in one or more programs? Yes ☑  No __

If yes, explain the change(s) below.

Requirements for the Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science will change. The addition of this modular-based laboratory course will make the RLS program more accessible and increase the number of students enrolling.

20. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

- Perform a comprehensive semen analysis acceptable for fertility diagnosis.
- Perform basic and complete morphology based on Strict Criteria; be familiar with other classification systems including WHO.
- Prepare a semen specimen for artificial insemination using two different methods.
- Perform all calculations for a sperm fraction concentration.
- Discuss advanced andrology procedures designed to detect: capacitation; acrosome reaction; zona binding; sperm penetration.
- Perform screening assays for antisperm antibodies
- Perform direct and indirect testing for antisperm antibodies.
- Interpret a post-coital test.
- Perform sperm-cervical mucus testing and cross-testing.
- Interpret the sperm-cervical mucus cross test to determine which partner(s) are contributing to the infertility problem. Set-up and perform quality assurance for the reproductive immunology laboratory.
- Demonstrate methods to prevent contamination and transmission of infectious agents in the ART laboratory.
- Using information from CSC 528, identify organisms associated with reproductive failure.
- Based on case studies, distinguish normal flora from pathogenic organisms in specimens from the male and female genito-urinary tracts.
• Based on accuracy, accessibility, and cost, determine the preferred testing for each of the organisms associated with infertility and reproductive failure.
• Set-up and perform quality assurance for the andrology laboratory and for the reproductive immunology and reproductive microbiology labs.

21. If the course is a 100-200 level course, please submit evidence (e.g., correspondence that the Community College System has been consulted. N/a

22. Within the Department, who should be contacted for further information about the proposed course?

Name  Doris J. Baker, Ph.D.  Phone Extension 323-1100 ext. 241

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
Signatures of Approval:

Department of Chair: ___________________________ Date: ____________

Dean of the College: ___________________________ Date: ____________

Date of Notice to the Faculty: ________________

*Undergraduate Council: _________________________ Date: ____________

*University Studies: ___________________________ Date: ____________

*Graduate Council: ____________________________ Date: ____________

*Academic Council for the Med Center: _________________ Date: ____________

*Senate Council: ______________________________

Date of Notice to Univ. Senate: _______________

*If applicable, as provided by the Rules of the University Senate

______________________________

ACTION OTHER THAN APPROVAL:
APPLICATION FOR NEW COURSE

1. College of Allied Health Professions                      Date  9/25/01

Department/Division offering course:  Clinical Sciences/Clinical Laboratory Sciences

5. Proposed designation and Bulletin description of this course:

d. Prefix and Number  CSC 628

b. Title*  RLS Seminar

*NOTE: If the title is longer than 24 characters (including spaces), write a sensible title (not exceeding 24 characters) for use on transcripts

c. Lecture/Discussion hours per week  1

d. Laboratory hours per week  0

e. Studio hours per week  n/a

f. Credits 1-2 (variable)

g. Course Description:  Students in the RLS seminar will critique research papers in the field, will develop and present PowerPoint presentations on subjects covering andrology, ART, cryopreservation of human reproductive tissue, management issues in the reproductive laboratory, and policy, ethical and legal issues in ART.

k. Prerequisites (if any):  CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 619, CSC 621, CSC 624, CSC 625 or consent of instructor.

i. May be repeated to a maximum of  N/A (if applicable).

4. To be cross-listed as  N/A

Prefix & No.  Signature, Chairman, cross-listing department

5. Effective Date:  Summer, 2002 (semester and year)

6. Course to be offered  Fall x  Spring x  Summer x

7. Will the course be offered each year?  Yes x  No
(Explain if not annually)

11. Why is this course needed?  Requirement for the Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science.
• CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or other science courses deemed appropriate by the RLS graduate committee
• CSC 620 (andrology – 3 credit hours) will be divided:
  o The lecture portion of andrology will be offered as CSC 616 via distance learning
  o The laboratory portion will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  o The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  o Review of cell biology, the male reproductive system, and fertilization portions of the course will be covered in CSC 615, “Reproductive Laboratory Science”
• CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
• Seminar will be for variable credit and will be specific for RLS.

9. a. By whom will the course be taught? Doris J. Baker, Ph.D.
   b. Are facilities for teaching the course now available? Yes x No
      If not, what plans have been made for providing them?

13. What enrollment may be reasonably anticipated? 15

11. Will this course serve students in the Department primarily? Yes x No
   Will it be of service to a significant number of students outside the Department? Yes No x
   If so, explain
   Will the course serve as a University Studies Program course? Yes No x
   If yes, under what Area?

12. Check the category most applicable to this course

   ☐ traditional; offered in corresponding departments elsewhere;
   ☑ relatively new, now being widely established
   ☐ not yet to be found in many (or any) other universities

16. Is this course part of a proposed new program? Yes x No
   If yes, which?

23. Will adding this course change the degree requirements in one or more programs? Yes x No
   If yes, explain the change(s) below.
   Will change requirements for Reproductive Laboratory Science (RLS) track in the Master of Science in Clinical Science. Offering this course for variable credit will allow students to take a
second seminar class to complete CSC requirements. Developing a seminar course for the RLS discipline will meet the need for students to research topics in the field and to present related materials.

24. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:
- Critically review the scientific literature.
- Prepare PowerPoint presentation on a topic related to reproductive laboratory science.
- Present a seminar on a topic in reproductive laboratory science, using appropriate language level, audiovisual aids and delivery style.

25. If the course is a 100-200 level course, please submit evidence (e.g., correspondence that the Community College System has been consulted. N/a

26. Within the Department, who should be contacted for further information about the proposed course?

Name Doris J. Baker, Ph.D. Phone Extension 323-1100 ext. 241

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01
   Department/Division offering course Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number: CSC 620 Proposed prefix & number: CSC 616
   
   (b) Present Title Andrology
       New Title Andrology

   (c) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to Exceed 24 characters) for use on transcripts:

   (d) Present credits: 3 Proposed credits: 1

   (e) Current lecture: laboratory ratio 2:1 Proposed: n/a lecture only

   (f) Effective Date of Change: (Semester & Year) Summer, 2002

3. To be Cross-listed as: (Prefix and Number) (Signature: Dept. Chair)
4. Proposed change in Bulletin description:
   (a) Present description (including prerequisite(s): Prerequisites: Bio 549 (Comparative Endocrinology) and CSC core.
   Review of male reproductive system including hormonal control, early development, spermatogenesis and fertilization. Basic and advanced andrology procedures will be discussed and laboratories will focus on semen analysis, sperm function tests, and preparation of partner and donor semen for artificial insemination.

   (b) New description: The course will include a review of male physiology, spermatogenesis and fertilization. The procedures appropriate for evaluation of male fertility will be presented and conditions and diseases associated with male factor infertility will be discussed. Basic and advanced andrology tests and procedures for both diagnostic and treatment purposes will be reviewed. Micromanipulation procedures (intracytoplasmic injection [ICSI]) and treatments using epididymal and testicular sperm will be introduced.

   (c) Prerequisite(s) for course as changes: CSC 528, CSC 615 or consent of the instructor.

5. What has prompted this proposal? In order to make the Reproductive Laboratory Science (RLS) track of the Clinical Science Master’s degree program more accessible to meet the national need, certain RLS courses will be offered via distance learning and modular format.

6. If there are to be significant changes in the content or teaching of this course, indicate changes:
   - Laboratory portion will be incorporated in new course (CSC 618; Labs in Andrology, Immunology & Microbiology)
   - Review of cell biology, the male reproductive system, and fertilization portions of the course will be covered in CSC 615
   - Reproductive microbiology portion of course will be incorporated in new courses (CSC 617 and CSC 618)

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? X yes ____ no
   
   If yes, please attach an explanation of the change.*

   The degree requirements for the RLS track in the Master’s degree program in Clinical Science will change as follows: CSC 620, a previous requirement for the RLS track will be replaced with four separate courses, one of which is CSC 616.
   - CSC 620 (andrology – 3 credit hours) will be divided:
     - The lecture portion will be offered as CSC 616 via distance learning
     - The laboratory portion will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
     - The microbiology portion of CSC 620 the course will be moved; the lecture portion will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

9. Is this course currently included in the University Studies Program? ____ Yes X No
   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

10. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System
Has been consulted.

*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

11. Is this a minor change? ___ Yes  X  No
   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

12. Within the Department, who should be consulted for further information on the proposed course change?

   Name:    Doris J. Baker, Ph.D.    Phone Extension:  323-1100 ext. 241
Signatures of Approval:

________________________________________________________        __________________________
Department Chair                                          Date

________________________________________________________        __________________________
Dean of the College                                      Date

__________________________
Date of Notice to the Faculty

________________________________________________________        __________________________
**Undergraduate Council                                  Date

________________________________________________________        __________________________
**Graduate Council                                       Date

________________________________________________________        __________________________
**Academic Council for the Medical Center               Date

________________________________________________________        __________________________
**Senate Council                                      Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

*********************************************************************************

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

a. change in number within the same hundred series;
b. editorial change in description which does not imply change in content or emphasis;
c. editorial change in title which does not imply change in content or emphasis;
d. change in prerequisite which does not imply change in content or emphasis;
e. cross-listing of courses under conditions set forth in item 3.0;
f. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01

Department/Division offering course Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
(a) Present prefix & number: CSC 621 Proposed prefix & number: CSC 621
(d) Present Title Embryology/ART

New Title Embryology & ART

(e) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to Exceed 24 characters) for use on transcripts:

(d) Present credits: 3 Proposed credits: 3
(e) Current lecture: laboratory ratio 1:1 Proposed: 1:1

(g) Effective Date of Change: (Semester & Year) Summer, 2002

11. To be Cross-listed as: _____________________________________
   (Prefix and Number)      (Signature: Dept. Chair)

12. Proposed change in Bulletin description:
   (b) Present description (including prerequisite(s): Prerequisites: Bio 549 (Comparative Endocrinology), Bio 544, CSC core, CSC 620. Review of female reproductive system including hormonal control, early development, oogenesis, the menstrual cycle, fertilization and early implantation. Assisted reproductive technology procedures will be discussed with the aid of photographs and videos and laboratories will focus on culturing and manipulating mouse embryos.

(b) New description: Lecture: The course will include a review of the female reproductive system, fertilization and implantation. The procedures appropriate for evaluation of female fertility will be presented and conditions and diseases associated with female factor infertility will be discussed. Basic and advanced tests and procedures for the treatment of infertility will be presented with a focus on assisted reproductive technology procedures, including in vitro fertilization and related procedures, micromanipulation, embryo culture, and third party reproduction. Laboratory: The laboratory will focus on embryo culture and micromanipulation procedures using mouse oocytes and embryos and human spermatozoa. Students will set up quality control for the ART laboratory.

(c) Prerequisite(s) for course as changes: CSC 528, CSC 615, CSC 616, CSC 617 and CSC 618 or consent of instructor.

5. What has prompted this proposal?

The prerequisites for this course change because the following revisions are being made in the RLS track of the Master of Science in Clinical Science in order to make the program more accessible and increase the number of students enrolled.

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  - The lecture portion of andrology will be offered as CSC 616 via distance learning
  - The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”.

- Review of cell biology, the male reproductive system, and fertilization portions of the course will be covered in CSC 615, “Reproductive Laboratory Science”

- CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”.

- The female reproductive system, fertilization and early implantation will be covered in CSC 615. The material will be reviewed in this course. Micromanipulation laboratory procedures will now be included in CSC 621 and both diagnosis and treatment of female factor infertility will be expanded. The new course description reflects these changes.

6. If there are to be significant changes in the content or teaching of this course, indicate changes:

   N/A

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? ___yes  X no
   If yes, please attach an explanation of the change.*

9. Is this course currently included in the University Studies Program? ___ Yes  X No
   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

10. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.
*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

13. Is this a minor change?  X Yes  ___ No
   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

14. Within the Department, who should be consulted for further information on the proposed course change?

   Name: Doris J. Baker, Ph.D.  Phone Extension: 323-1100 ext. 241
Signatures of Approval:

________________________________________________________        __________________________
Department Chair                                                  Date

________________________________________________________        __________________________
Dean of the College                                               Date

________________________________________________________        __________________________
Date of Notice to the Faculty

**Undergraduate Council                                         Date

**Graduate Council                                               Date

**Academic Council for the Medical Center                       Date

**Senate Council                                                 Date of Notice to
University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

**************************************************************************************

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

g. change in number within the same hundred series;
h. editorial change in description which does not imply change in content or emphasis;
i. editorial change in title which does not imply change in content or emphasis;
j. change in prerequisite which does not imply change in content or emphasis;
k. cross-listing of courses under conditions set forth in item 3.0;
l. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01

Department/Division offering course Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number: CSC 624 Proposed prefix & number: CSC 624
   (f) Present Title Gamete & Embryo Cryo
       New Title Gamete & Embryo Cryo
   (g) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to Exceed 24 characters) for use on transcripts:
       (d) Present credits: 1 Proposed credits: 1
       (e) Current lecture: laboratory ratio 1:1 Proposed: 1:1
   (h) Effective Date of Change: (Semester & Year) Summer, 2002

13. To be Cross-listed as: _____________________________________
    (Prefix and Number) (Signature: Dept. Chair)

14. Proposed change in Bulletin description:
   (c) Present description (including prerequisite(s)): Prerequisites: CSC 620 and CSC 621 Principles of cryopreservation will be covered; includes laboratory sessions on cryopreservation of human sperm and mouse embryos. Legal, ethical and policy issues associated with cryopreservation will be introduced.
   (b) New description: Lecture: Principles of cryopreservation will be covered. Protocols for freezing spermatozoa, testicular tissue, oocytes, ovarian tissue and embryos at various stages of development will be introduced. Problems associated with freezing particular tissue types will be discussed. Laboratory: Students will cryopreserve human sperm and mouse embryos using both manual and automated methods. Students will thaw frozen gametes and embryos and assess using standard criteria. Legal, ethical and policy issues associated with cryopreservation of human reproductive tissue will be introduced, including potential for transmission of infectious disease and issues associated with the term of storage of embryos.
   (c) Prerequisite(s) for course as changes: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, and CSC 621 or consent of instructor

15. If there are to be significant changes in the content or teaching of this course, indicate changes:

N?A

The prerequisites for this course change because the following revisions are being made in the RLS track of the Master of Science in Clinical Science in order to make the program more accessible and increase the number of students enrolled.

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  - The lecture portion of andrology will be offered as CSC 616 via distance learning
  - The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

- Review of cell biology, the male reproductive system, and fertilization portions of the course will be covered in CSC 615, “Reproductive Laboratory Science”
- CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

- The new course description describes the topics and procedures more comprehensively, but the course content does not change.

16. What other departments could be affected by the proposed change? N/A

17. Will changing this course change the degree requirements in one or more programs? ___ yes X no

   If yes, please attach an explanation of the change.*

18. Is this course currently included in the University Studies Program? ___ Yes X No

   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

19. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System Has been consulted.

*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

15. Is this a minor change? X Yes ___ No
   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

16. Within the Department, who should be consulted for further information on the proposed course change?

   Name: Doris J. Baker, Ph.D.    Phone Extension: 323-1100 ext. 241
The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

m. change in number within the same hundred series;
n. editorial change in description which does not imply change in content or emphasis;
o. editorial change in title which does not imply change in content or emphasis;
p. change in prerequisite which does not imply change in content or emphasis;
q. cross-listing of courses under conditions set forth in item 3.0;
r. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01

Department/Division offering course Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number: CSC 625 Proposed prefix & number: CSC 625

   (h) Present Title Policy, Management, Ethical & Legal Issues in Assisted Reproduction
       New Title Mgt., Pol, Eth, Legal Issues in ART

   (i) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to
       Exceed 24 characters) for use on transcripts:

   (d) Present credits: 2 Proposed credits: 2

   (e) Current lecture: laboratory ratio all lecture Proposed: All lecture

   (i) Effective Date of Change: (Semester & Year) Summer, 2002

20. To be Cross-listed as: _____________________________________

      (Prefix and Number) (Signature: Dept. Chair)

21. Proposed change in Bulletin description:
   (d) Present description (including prerequisite(s): Prerequisites: CSC 620, CSC 621 and CSC 624. Current and
       anticipated regulations of assisted reproductive technology will be discussed. Legal and ethical concerns associated
       with ART will be introduced and case studies will focus on specific issues

   (e) New description: Policy Current and anticipated regulation of assisted reproductive technology (ART) will be
       discussed. Laboratory management will be covered extensively and will include development of quality control and
       quality assurance programs for ART and andrology laboratories. Basic ethics principles will be introduced and ethical
       issues associated with the practice of ART will focus on controversial and research procedures, including embryonic
       stem cell research, human cloning, fetal reduction, nuclear and cytoplasmic transfer, embryo freezing and storage,
       gestational hosts and surrogacy. Legal cases and rulings will be used to demonstrate liabilities associated with the
       medical and laboratory practice or ART.

   (f) Prerequisite(s) for course as changes: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 621, and
       CSC 624 or consent of instructor.

5. What has prompted this proposal?

The prerequisites for this course change because the following revisions are being made in the RLS track of the Master
of Science in Clinical Science in order to make the program more accessible and increase the number of students
enrolled.

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the
  following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or
  other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  o The lecture portion of andrology will be offered as CSC 616 via distance learning
  o The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-
    based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

  o The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the
new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  - Review of cell biology, the male reproductive system, and fertilization portions of the course will be covered in CSC 615, “Reproductive Laboratory Science”
  - CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

- The new course description describes the topics and procedures more comprehensively, but the course content does not change.

6. If there are to be significant changes in the content or teaching of this course, indicate changes: N/A

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? __ yes X no

   If yes, please attach an explanation of the change.*

9. Is this course currently included in the University Studies Program? __ Yes X No

   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

10. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System Has been consulted.

*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

17. Is this a minor change? X Yes __ No

   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

18. Within the Department, who should be consulted for further information on the proposed course change?

   Name: Doris J. Baker, Ph.D. Phone Extension: 323-1100 ext. 241
Signatures of Approval:

________________________________________________________        __________________________
Department Chair             Date
________________________________________________________        __________________________
Dean of the College                     Date
----------------------------------------
Date of Notice to the Faculty
________________________________________________________        __________________________
**Undergraduate Council                Date
________________________________________________________        __________________________
**Graduate Council                 Date
________________________________________________________        __________________________
**Academic Council for the Medical Center                   Date
________________________________________________________        __________________________
**Senate Council                  Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

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The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

s. change in number within the same hundred series;
t. editorial change in description which does not imply change in content or emphasis;
u. editorial change in title which does not imply change in content or emphasis;
v. change in prerequisite which does not imply change in content or emphasis;
w. cross-listing of courses under conditions set forth in item 3.0;
x. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01
   Department/Division offering course Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number: CSC 626 Proposed prefix & number: CSC 626

   (j) Present Title Clin Practicum in Andrology
       New Title Andrology Clin Practicum

   (c) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to
       Exceed 24 characters) for use on transcripts:

   (d) Present credits: 2 Proposed credits: 1-2
   (e) Current lecture: laboratory ratio all clinical practicum Proposed: all clinical practicum

   (j) Effective Date of Change: (Semester & Year) Summer, 2002

22. To be Cross-listed as: _____________________________________
    (Prefix and Number)      (Signature: Dept. Chair)

23. Proposed change in Bulletin description:
   (g) Present description (including prerequisite(s): Prerequisites: CSC 620, CSC 621, CSC 623, CSC 624 and CSC 625 or
       consent of instructor. Students must complete the checklist procedures while working under supervision. Andrology
       procedures will include semen analysis, sperm functions tests, microbiology, preparation of partner and donor semen
       for artificial insemination and cryopreservation of male gametes.
   (h) New description: Students must complete the checklist procedures while working under supervision. Andrology
       procedures will include semen analysis, sperm functions tests, microbiology, preparation of partner and donor semen
       for artificial insemination and cryopreservation of male gametes.
   (c) Prerequisite(s) for course as changes: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618 or consent of
       instructor.

24. What has prompted this proposal?

The prerequisites for this course change because the following revisions are being made in the RLS track of the Master
of Science in Clinical Science in order to make the program more accessible and increase the number of students
enrolled.

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the
  following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or
  other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  o The lecture portion of andrology will be offered as CSC 616 via distance learning
  o The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-
    based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology &
    Reproductive Microbiology”
  o The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the
    new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the
    microbiology laboratory segment will be incorporated in the new one-hour modular, campus-
    based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology &
    Reproductive Microbiology”
  o Review of cell biology, the male reproductive system, and fertilization portions of the course will
    be covered in CSC 615, “Reproductive Laboratory Science”
- CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be
• This course will be offered for variable credit to provide more flexibility

6. If there are to be significant changes in the content or teaching of this course, indicate changes:

N/A

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? ___ yes   X no

   **If yes, please attach an explanation of the change.**

   Based on the above changes, the prerequisites for CSC 626 will be different.

11. Is this course currently included in the University Studies Program? ___ Yes   X No

   **If yes, please attach correspondence indicating concurrence of the University Studies Committee.**

12. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System Has been consulted.

   *Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

19. Is this a minor change?   X Yes   ___ No

   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

20. Within the Department, who should be consulted for further information on the proposed course change?

   Name: Doris J. Baker, Ph.D.   Phone Extension: 323-1100 ext. 241
Signatures of Approval:

________________________________________________________        __________________________
Department Chair             Date

________________________________________________________        __________________________
Dean of the College                            Date

________________________________________________________        __________________________
**Undergraduate Council             Date

________________________________________________________        __________________________
**Graduate Council                   Date

________________________________________________________        __________________________
**Academic Council for the Medical Center         Date

________________________________________________________        __________________________
**Senate Council                      Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

******************************************************************************
The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

y. change in number within the same hundred series;
z. editorial change in description which does not imply change in content or emphasis;
aa. editorial change in title which does not imply change in content or emphasis;
bb. change in prerequisite which does not imply change in content or emphasis;
c. cross-listing of courses under conditions set forth in item 3.0;
d. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions Date: 9/26/01
   Department/Division offering course: Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number: CSC 627 Proposed prefix & number: CSC 627
   (k) Present Title: Clin Practicum in ART Lab
      New Title: ART Clinical Practicum
   (c) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to exceed 24 characters) for use on transcripts:
   (d) Present credits: 3 hrs Proposed credits: 1-3 hrs
   (e) Current lecture: laboratory ratio: all clinical practicum Proposed: all clinical practicum
   (k) Effective Date of Change: (Semester & Year) Summer, 2002

25. To be Cross-listed as: _____________________________________
    (Prefix and Number) (Signature: Dept. Chair)

26. Proposed change in Bulletin description:
   (i) Present description (including prerequisite(s): Prerequisites:
      CSC 620, CSC 621, CSC 623, CSC 624 and CSC 625.
      Students must complete the checklist procedures while working under supervision. All ART procedures including
      in vitro fertilization, ICSI, zona hatching and cryopreservation of gametes and embryos will be practiced under
      supervision using appropriate models for practice
   (j) New description: Students must complete the checklist procedures while working under supervision. All ART
      procedures will be performed under supervision using appropriate models for practice. Procedures will include, in
      vitro fertilization and related procedures, micromanipulations including intracytoplasmic sperm injection, assisted
      hatching and preimplantation genetic diagnosis and cryopreservation of oocytes embryos.
   (c) Prerequisite(s) for course as changes: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 621, CSC
      624 or consent of instructor.

27. What has prompted this proposal?

The prerequisites for this course change because the following revisions are being made in the RLS track of the Master
of Science in Clinical Science in order to make the program more accessible and increase the number of students
enrolled.

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the
  following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or
  other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  o The lecture portion of andrology will be offered as CSC 616 via distance learning
  o The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-based
    laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  o The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the
    new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the
    microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based
    laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  o Review of cell biology, the male reproductive system, and fertilization portions of the course will
    be covered in CSC 615, “Reproductive Laboratory Science”

- CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be
  included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology &
  Reproductive Microbiology”
Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”.

- This course will be offered for variable credit for flexibility.

6. If there are to be significant changes in the content or teaching of this course, indicate changes:
   
   N/A

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? ___ yes  X no

   **If yes, please attach an explanation of the change.**

   Based on the above changes, the prerequisites for CSC 627 will be different. The new course description has been modified slightly to include additional procedures which may be performed during the clinical practicum.

13. Is this course currently included in the University Studies Program? ___ Yes  X No

   **If yes, please attach correspondence indicating concurrence of the University Studies Committee.**

14. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System Has been consulted.

*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

21. Is this a minor change?  X Yes  ___ No

   **(NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)**

22. Within the Department, who should be consulted for further information on the proposed course change?

   **Name:** Doris J. Baker, Ph.D.  **Phone Extension:** 323-1100 ext. 241
The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

- ee. change in number within the same hundred series;
- ff. editorial change in description which does not imply change in content or emphasis;
- gg. editorial change in title which does not imply change in content or emphasis;
- hh. change in prerequisite which does not imply change in content or emphasis;
- ii. cross-listing of courses under conditions set forth in item 3.0;
- jj. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR AND MINOR

1. Submitted by the College of Allied Health Professions  Date: 9/26/01

Department/Division offering course  Clinical Sciences/Clinical Laboratory Sciences

2. Changes proposed:
   (a) Present prefix & number:  CSC 630  Proposed prefix & number:  CSC 630

   (l) Present Title  RLS Research for M.S.  New Title  RLS Research

   (c) If course title is changed and exceeds 24 characters (Including spaces), include sensible title (not to
   Exceed 24 characters) for use on transcripts:

   (d) Present credits: 3-5 hrs.  Proposed credits: 3-5 hrs.

   (e) Current lecture: laboratory ratio all research  Proposed: research methods and research project

   (l) Effective Date of Change: (Semester & Year)  Summer, 2002

28. To be Cross-listed as: _____________________________________

   (Prefix and Number)      (Signature: Dept. Chair)

29. Proposed change in Bulletin description:

   (k) Present description (including prerequisite(s)): Prerequisites CSC core; additional RLS courses as dictated by the
   research project. Research projects for students in Reproductive Laboratory Science will be registered under this
   course. Projects should be related to the student’s individual interest and should be under the supervision of the
   appropriate faculty member. Students are allowed to register for this course for variable credit.

   (l) New description: Research projects for students in Reproductive Laboratory Science will be registered under this
   course. Projects shall be related to the student’s individual interest and shall be under the supervision of the
   appropriate faculty member. Students are allowed to register for this course for variable credit.

   (m) Prerequisite(s) for course as changes: CSC 528; others to be based on student background and nature of the
   project as determined by the RLS committee or consent of instructor.

5. What has prompted this proposal

   The prerequisites for this course change because the following revisions are being made in the RLS track of the Master
   of Science in Clinical Science in order to make the program more accessible and increase the number of students
   enrolled.

   • CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the
     following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or
     other science courses deemed appropriate by the RLS graduate committee

   • CSC 620 (andrology – 3 credit hours) will be divided:
     o The lecture portion of andrology will be offered as CSC 616 via distance learning
     o The laboratory portion will be incorporated in the new one-hour modular, campus-based
       laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive
       Microbiology”
     o The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the
       new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the
       microbiology laboratory segment will be incorporated in the new one-hour modular, campus-
       based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology &
       Reproductive Microbiology”
     o Review of cell biology, the male reproductive system, and fertilization portions of the course will
       be covered in CSC 615, “Reproductive Laboratory Science”

   • CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be
     included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology &
     Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular,
campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”

6. If there are to be significant changes in the content or teaching of this course, indicate changes:
   
   N/A

7. What other departments could be affected by the proposed change? N/A

8. Will changing this course change the degree requirements in one or more programs? __ yes   X no

   If yes, please attach an explanation of the change.*

15. Is this course currently included in the University Studies Program? ___ Yes   X No

   If yes, please attach correspondence indicating concurrence of the University Studies Committee.

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System Has been consulted.

*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

23. Is this a minor change? X Yes   __ No

   (NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)

24. Within the Department, who should be consulted for further information on the proposed course change?

   Name:   Doris J. Baker, Ph.D.    Phone Extension:   323-1100 ext. 241
Signatures of Approval:

________________________________________________________        __________________________
Department Chair             Date

________________________________________________________        __________________________
Dean of the College                            Date

__________________________
Date of Notice to the Faculty

________________________________________________________        __________________________
**Undergraduate Council              Date

________________________________________________________        __________________________
**Graduate Council              Date

________________________________________________________        __________________________
**Academic Council for the Medical Center              Date

________________________________________________________        __________________________
**Senate Council                             Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

***********************************************************************************************

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

kk. change in number within the same hundred series;
ll. editorial change in description which does not imply change in content or emphasis;
mm. editorial change in title which does not imply change in content or emphasis;
nn. change in prerequisite which does not imply change in content or emphasis;
oo. cross-listing of courses under conditions set forth in item 3.0;
pp. correction of typographical errors. [University Senate Rules III - 3.1]
APPLICATION TO DROP A COURSE

1. Submitted by the College: College of Allied Health Professions  Date: 10/1/01
   Department/Division offering course: Clinical Sciences/Clinical Laboratory Sciences

2. Prefix & number: CSC 623  Title: Reproductive Immunology  Credits: 1

3. Effective Date: Fall, 2002 (semester & year)

4. Why is this course to be dropped? Course content is being incorporated in other related courses. The lecture content will be incorporated in CSC 617, “Reproductive Immunology and Microbiology”, a distance-learning course and the laboratory will be contained in CSC 618, “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”, which will have a modular format.

5. Will dropping this course change the degree requirements in one or more programs?*
   If yes, explain the change(s) below.

The curriculum for the Reproductive Laboratory Science (RLS) track of the Master of Science degree program in Clinical Sciences is being revised to make the program more accessible in order to respond to the demand for trained embryologists to meet the national shortage. The RLS track is currently offered on-campus in Lexington and includes 19-hours of core courses in addition to the RLS specialty courses. The goal of this curriculum change is to:

- Replace the current core with science-based graduate courses since this need was documented in a pilot RLS certificate course offered in Summer, 2001
- Decrease the time on Lexington campus without changing the content or quality of the RLS courses
- Use this opportunity to combine related areas (e.g. immunology and microbiology)
- Use this opportunity to change admission criteria that may be misleading

This would be accomplished by:

- Offering certain courses via distance learning
- Offering RLS on-campus courses using the modular format
- Making the clinical practicum courses variable credit to give the student more flexibility for scheduling the clinical rotation
- Collaborating with ART laboratories for research projects, particularly for those students already employed in an ART lab, enabling students to complete portions of their research at or near their home base (only fully accredited ART labs with Ph.D. faculty appointed as clinical faculty by the University of Kentucky would qualify).
- Combining related materials into one course (e.g. immunology and microbiology)
- Change admission criteria to “Bachelor’s degree in clinical laboratory science or bachelor’s degree in science with acceptable laboratory experience”. Current criteria is “Bachelor of Science degree” which could include degree in Computer Science etc.

Specific changes:

- CSC core replaced with a graduate course in statistics and 6-9 graduate hours in science selected from the following areas: physiology, cell biology, embryology, immunology, endocrinology and microbiology; or other science courses deemed appropriate by the RLS graduate committee
- CSC 620 (andrology – 3 credit hours) will be divided:
  - The lecture portion of andrology will be offered as CSC 616 via distance learning
  - The laboratory portion of andrology will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  - The microbiology portion of CSC 620 will be moved; the lecture portion will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology, Reproductive Immunology & Reproductive Microbiology”
  - CSC 623 (Reproductive Immunology – 1 credit hour) will be dropped. CSC 623 lecture content will be included in the new one-hour distance learning course, CSC 617 “Reproductive Immunology & Microbiology”; the microbiology laboratory segment will be incorporated in the new one-hour modular, campus-based laboratory course, CSC 618 “Labs in Andrology,
6. Has the course been taken by a significant number of students in other departments/colleges?
   ___yes  X  No

   a. If yes, list the college(s) or department(s) from which student enrollment in this course has come, if known

   N/A

   b. What provision has been made for meeting the needs of these students?

   N/A
7. Is this course in current use in any of the Community Colleges? ___ Yes  X No
   If so, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

8. Is this course currently included in the University Studies Program? ___ Yes  X No

9. Within the department, who should be contacted for further information about this proposal?
   Doris J. Baker, Ph.D.  323-1100 ext 241
*Note: Approval of this change will constitute approval of the program change unless other program modifications proposed.

**Signatures of Approval:**

__________________________        __________________________
Department Chair             Date

__________________________        __________________________
Dean of the College             Date

__________________________        __________________________
Date of Notice to the Faculty

__________________________        __________________________
**Undergraduate Council             Date

__________________________        __________________________
**Graduate Council             Date

__________________________        __________________________
**Academic Council for the Medical Center             Date

__________________________        __________________________
**Senate Council             Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

*******************************************************************************
The courses in this proposal are part of the Reproductive Laboratory Science (RLS) track in the Master of Science degree in Clinical Sciences. Faculty members in the Reproductive Laboratory Science track are confident that a distributed learning format for selected lecture courses, combined with a modular delivery system for laboratory-based courses, would rapidly respond to the national shortage for trained embryologists by making the RLS program more accessible for both traditional and non-traditional students. Our RLS graduate program, the only one of its kind in the United States, was approved as a traditional program, requiring two-to-three years on campus in Lexington for completion. This approach does not respond to individuals wishing to obtain education in this area, but who for personal, professional or financial reasons are unable to move to Lexington for this extended period nor does it respond to professionals already employed in assisted reproductive technology laboratories who wish to further their education for the advancement of the laboratory in which they are already employed.

The three one-credit hour distributed learning courses would contribute to the overall strategy designed to make the program more accessible and to respond to the national need for education in this nascent field. In addition to distributed learning, overall program strategies will include 1) the use modular lectures and laboratories to be delivered on campus with students receiving one-on-one laboratory instruction, and presentations by experts in each of the RLS disciplines [e.g. embryology, micromanipulation, cryopreservation, laboratory management, law and policy]; 2) use of computer tutorials for laboratory instruction in areas not permitting student practice [human embryology]; 3) clinical practica in assisted reproductive technology laboratories throughout the United States; and 4) collaborative student research projects with embryologists and clinicians in the field.

The three lecture courses delivered by distributed learning would allow students extended time to master background materials for the more intense modular classes when they come to campus. Contact hours for more traditional courses are based on in-class time. In the distributed learning courses, contact hours will be accounted for by: 1) homework tasks completed; 2) e-mail correspondence and other electronic interactions with faculty; and 3) documentation by examinations that the student has mastered the materials. CD-Roms, which are included in some of the courses, provide for interactive self-paced learning. These tools also include self-assessments so the student can judge his/her progress. This format substitutes for a portion of the one-on-one instruction provided in more traditional courses.

The Reproductive Laboratory Science students are oriented to this pedagogy in the following ways: 1) they receive printed materials to serve as backup for materials on the web; 2) students will receive instruction from the College of Allied Health’s Manager of Instructional Technology and 3) syllabi for each distributed learning course will include printed information on how to participate in the course to achieve maximal effectiveness.
Questions to be Answered for the Medical Center Academic Council Regarding Multi-Media or Distance Learning Courses

College of Allied Health Professions
Master of Science in Clinical Sciences
Reproductive Laboratory Science Track
Distributed Learning Format
September 25, 2001

The following plan outlines the procedures to be followed for selected Reproductive Laboratory Science (RLS) courses in the Clinical Sciences M.S. program:

CSC 615, Reproductive Laboratory Science
CSC 616, Andrology
CSC 617, Reproductive Immunology & Microbiology

1. Describe the plan for administering and monitoring examinations for the multi-media course.

Plan:
For each of the one credit hour lecture courses students will complete 3-4 written examinations. All examinations will be available on the web.

Students registered for CSC 616 (Andrology) also will complete a comprehensive assignment on ‘semen analysis’ using a CD-Rom, authored by one of the RLS faculty. The CD has several self-assessment tools which students will be asked to complete prior to written Examination I.

2. Describe the availability of related services such as laboratories, library service, research, and supplemental information.

Availability:
Students will receive instruction on how to access course information on the web by two methods:
- They will be mailed a hard copy of all instructions prior to the beginning of the course.
- The course web page will include supplemental instructional and trouble-shooting information.

The faculty members responsible for content development have completed courses in BlackBoard. Both these faculty and the web-master, responsible for converting the course materials to the web-based format, will be available to assist students with program usage.

The College of Allied Health Professions employs a full-time Manager of Instructional Technology who will have input on the development of each of the above courses. He will be available to assist students with trouble-
3. Describe the technical requirements for remote sites (ITV, computer hardware/software, special equipment).

<table>
<thead>
<tr>
<th>Technical Requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Macintosh Power PC-68040 processor or greater or</td>
</tr>
<tr>
<td>- IBM or IBM compatible PC</td>
</tr>
<tr>
<td>- Pentium or greater processor (Pentium II 350 MHz or higher recommended)</td>
</tr>
<tr>
<td>- Windows 98/2000</td>
</tr>
<tr>
<td>- 64 Megabytes of RAM or more (128 Megabytes recommended)</td>
</tr>
<tr>
<td>- 60 Megabytes of free hard disk space</td>
</tr>
<tr>
<td>- 28800 baud modem (56 Kbps or higher recommended)</td>
</tr>
<tr>
<td>- Sound card recommended (required for some courses)</td>
</tr>
<tr>
<td>- 4 X CD-Rom or faster</td>
</tr>
<tr>
<td>- Quick-Time for Windows v. 4.0 (available on “Semen Analysis” CD required for andrology course)</td>
</tr>
<tr>
<td>- Display capable of 640 X 480</td>
</tr>
<tr>
<td>- 16 bit high color resolution</td>
</tr>
<tr>
<td>- Version 4.0 or above graphics-based web browser</td>
</tr>
<tr>
<td>- E-mail account</td>
</tr>
<tr>
<td>- Internet connection (via Internet service provider or Ethernet connection if on-campus)</td>
</tr>
</tbody>
</table>
4. If the course is or has been offered in a standard delivery mode, provide a brief statement that provides supporting evidence that the multi-media or off-campus course is enhanced or equivalent when compared to the standard delivery version of the course in the following four areas: 1) delivery time/schedule; 2) interaction (faculty-to-faculty; student-to-student); 3) evaluation; 4) other (explain). Please provide this information in table format (example below).

All three courses are included in CSC 620 (Andrology – 3 credit hours) and CSC 623 (Reproductive Immunology – 1 credit hour) in the Clinical Sciences Master’s program. The content for these three courses was offered in Summer, 2001 as GSLC-Andrology (as part of certificate in Reproductive Laboratory Science). The content included in both the Andrology course and the Reproductive Immunology course is being redistributed into four separate courses (1 credit-hour each):

- Reproductive Laboratory Science (CSC 615) – 1 credit hour; (distributed learning)
- Andrology (CSC 616) – 1 credit hour; (distributed learning)
- Reproductive Immunology & Microbiology (CSC 617) – 1 credit hour; (distributed learning)
- Laboratories in Andrology, Reproductive Immunology & Microbiology (CSC 618) – 1 credit hour; (campus-based laboratory course)

This redistribution of material will allow students to complete lecture components in andrology and immunology via distance learning and complete laboratory exercises on campus in the CSC 618 course, making the RLS program more accessible for non-traditional students.

<table>
<thead>
<tr>
<th>Standard Format</th>
<th>Multi-Media Format</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delivery Time/Schedule</strong></td>
<td>Completed during one semester</td>
</tr>
<tr>
<td></td>
<td>- Content was delivered by faculty using PowerPoint presentations</td>
</tr>
<tr>
<td></td>
<td>- Supplemented by CD-Roms</td>
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<tr>
<td></td>
<td>- Laboratories taught by laboratory instructor</td>
</tr>
<tr>
<td><strong>Interaction (faculty-to-faculty; student-to-student)</strong></td>
<td>Faculty to student interaction in both lecture and lab</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Lectures, Laboratories</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>Lectures: In-class and take-home written examinations; Laboratories: Examinations and lab reports</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Other (explain):</td>
<td>N/A</td>
</tr>
</tbody>
</table>

5. Provide an electronic syllabus for the course using multi-media or off-campus mode (syllabus should include: a. a statement of learning objectives and, b. a description of evaluation methods).

6. Provide an electronic copy of the syllabus, if the course is being or was taught using traditional delivery formats.

i:\aadata\council\OutlineforOffCampusCourses.doc
CSC 615  REPRODUCTIVE LABORATORY SCIENCE

Lecture: Distributed Learning Format: one semester

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE: 201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER: (859) 323-1100 ext. 241
E-MAIL dbake0@uky.edu
ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER: (859) 323-5150
E-Mail kkcamp1@pop.uky.edu

Course Description: Reproductive Laboratory Science: 1 credit hour: Prerequisites: none
The course includes basic cell biology and principles of genetics; a review of the male reproductive system including hormonal control, early development, spermatogenesis and fertilization; a review of the female reproductive system including hormonal control, early development, oogenesis, the menstrual cycle, fertilization and early implantation.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

- Define the basic structure and function of the cell.
- Describe the function of eukaryotic cellular organelles.
- Describe the membrane fluid mosaic model and list functions of proteins and carbohydrates found on the cell membrane.
- Distinguish glycolysis from the complete breakdown of glucose in the Krebs Cycle and the Electron Transport Chain (discuss total energy derived from each).
- Distinguish diffusion, facilitated diffusion, osmosis and active transport.
- Give the general properties of prokaryotic and eukaryotic cells. Give examples of each.
- Discuss the levels of organization in multicellular organisms.
- Project numbers and types of organelles for specialized cell (e.g. hepatocyte or spermatozoa).
- Fully describe meiosis and describe why meiosis is a “reduction” division.
- Compare and contrast mitosis and meiosis.
- Describe the lactose inducer as a means of cell regulation.
- List ways gene expression may be regulated in eukaryotes.
- Distinguish pre-mRNA and mRNA. Describe how these differences may be a way to regulate gene expression in eukaryotes.
- Define cell signaling and give examples.
- Describe: gap junctions, occludens junctions and adherens junctions.
- Describe the function of eukaryotic cellular organelles.
- Detail the steps involved in transcription and translation.
- Beginning with mRNA, outline the steps involved in the synthesis of a protein.
- Demonstrate an understanding of the anatomy and physiology of the male reproductive system.
- Fully describe spermatogenesis and distinguish spermatogenesis and spermiogenesis.
- Explain hormonal control of spermatogenesis, oogenesis, ovulation and implantation.
- Describe the sequential steps leading to fertilization (capacitation, zona binding, acrosome reaction).
- Demonstrate an understanding of the anatomy and physiology of the early embryo.
Required Text: None

Reference Texts and References:

Books:


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

**Journals:**

- American Journal of Obstetrics & Gynecology
- American Journal of Reproductive Endocrinology
- Andrologia
- Biology of Reproduction
- Clinical Obstetrics & Gynecology
- Contraception
- Development
- Developmental Biology
- Endocrinology Reviews
- Fertility & Sterility
- Gamete Research
- Human Reproduction
- International Journal of Developmental Biology
- Journal of the American Medical Association
- Journal of Andrology
- Journal of Assisted Reproduction
- Journal of Reproduction & Fertility
- Journal of Assisted Reproduction & Genetics
- Journal of Clinical Endocrinology & Metabolism
- Journal of In Vitro Fertilization & Embryo Transfer
- Journal of Microbiology
- Journal of Reproduction and Fertility
- Journal of Reproductive Medicine
- Molecular Human Reproduction
- Molecular Reproductive Development

**Grading: CSC 615**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam I</td>
<td>30%</td>
</tr>
<tr>
<td>Exam II</td>
<td>30%</td>
</tr>
<tr>
<td>Exam III</td>
<td>30%</td>
</tr>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Grading Scale:**

- 90-100% = A
- 80-89% = B
- 70-79% = C
- below 70% = E

**Course Policies:**

- Homework assignments are to be completed by the student without assistance.
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<table>
<thead>
<tr>
<th>Week Assignment is placed on WEB</th>
<th>Topic</th>
<th>Reading Assignments &amp; Homeworks</th>
<th>Due Date for Homework</th>
<th>Examinations/Material is Included</th>
</tr>
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<tbody>
<tr>
<td><strong>Week 1</strong></td>
<td><strong>Course Orientation:</strong> Review of Cell Biology: Cell structure &amp; function</td>
<td>TBA</td>
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<td><strong>Week 2</strong></td>
<td>Review of Cell Biology: Mitosis &amp; meiosis</td>
<td>TBA</td>
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<td><strong>Week 3</strong></td>
<td>Review of Cell Biology: Cell signaling; gene expression; protein synthesis</td>
<td>TBA</td>
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<td><strong>Week 4</strong></td>
<td>Male Reproductive System: Anatomy &amp; physiology</td>
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| **Week 5** | Male Reproductive System: Anatomy & physiology | TBA | TBA | **Weeks 1-3** 
| **Week 6** | **Exam I** | TBA | TBA | 
| **Week 7** | Spermatogenesis | TBA | TBA | 
| **Week 8** | Hormonal control of spermatogenesis | TBA | TBA | **Weeks 4-5, 7-8** 
| **Week 9** | Female Reproductive System: Anatomy & Physiology | TBA | TBA | 
| **Week 10** | **Exam II** | TBA | TBA | 
| **Week 11** | Female Reproductive System: Anatomy & Physiology | TBA | TBA | 
| **Week 12** | Hormonal control of oogenesis, ovulation and implantation | TBA | TBA | 
| **Week 13** | Fertilization | TBA | TBA | 
| **Week 14** | Early implantation | TBA | TBA | 
| **Week 15** | **Summary/Review** | TBA | TBA | **Weeks 9, 11-14** 
| **Week 16** | **Exam III** | TBA | TBA | 

Material will remain on the web for 3 week periods; weekly chat sessions TBA
CSC 616 ANDROLOGY

Lecture: Distributed Learning Format: one semester

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE: 201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER: (859) 323-1100 ext. 241
E-MAIL dbake0@uky.edu
ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER: (859) 323-5150
E-Mail kkcamp1@pop.uky.edu

Course Description: Andrology – 1 credit hour  Prerequisites: CSC 528, CSC 615. The course will include a review of male physiology, spermatogenesis and fertilization. The procedures appropriate for evaluation of male fertility will be presented and conditions and diseases associated with male factor infertility will be discussed. Basic and advanced andrology tests and procedures for both diagnostic and treatment purposes will be reviewed. Micromanipulation procedures (intracytoplasmic injection [ICSI]) and treatments using epididymal and testicular sperm will be introduced.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

- Demonstrate an understanding of the anatomy and physiology of the male reproductive tract.
- Outline the steps in spermatogenesis and discuss hormonal control.
- Describe successful fertilization of the oocyte and the subsequent steps leading to demonstration of the zygote.
- Describe the clinical evaluation for male fertility including physical examination, laboratory investigation, hormone determinations, chromosome and genetic analysis and other technical investigations.
- Using the CD-Rom, “Semen Analysis Training Tool” outline the procedures for performing the macroscopic and microscopic components of a comprehensive semen analysis appropriate for fertility evaluation.
- Accurately perform a sperm motility using the interactive CD-Rom, “Semen Analysis Training Tool”.
- Accurately perform a ‘Strict Criteria’ sperm morphology using the interactive CD-Rom, “Semen Analysis Training Tool”.
- Pass the comprehensive examination on semen analysis from the interactive CD-Rom, “Semen Analysis Training Tool”.
- Discuss the various factors associated with male factor infertility and give treatment options for each.
- Describe diagnostic categories in the standardized management of male infertility.
- Compare treatment options based on infertility diagnosis.
- Discuss concerns regarding treatment using epididymal and testicular sperm and with the ICSI procedure.
- Based on the semen analyses from case studies, determine which biochemical, and antibody testing would be indicated.
- Correlate semen analysis, biochemical and antibody results from case studies to determine which assisted reproductive procedures would be appropriate for treatment.
Required text/references:

References:
Books:


VIDEOS:

Sperm Prep, Produced by Fertility Technologies, Inc., Natick, Ma.

Laboratory to Life; the Art and Science of Embryology; Produced by Serono Labs, Norwell, MA, 1994

CD-ROMS


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS

Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:
American Journal of Obstetrics & Gynecology
American Journal of Reproductive Endocrinology
Andrologia
Biology of Reproduction
Clinical Obstetrics & Gynecology
Contraception
Development
Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development

Grading: CSC 615

<table>
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<th>Component</th>
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<tr>
<td>Exam III</td>
<td>30%</td>
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<td>Homework</td>
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Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E
Course Policies:
- Homework assignments are to be completed by the student without assistance.
- Students are expected to complete all instructional materials during the time period they are posted on the web.
- Students must complete examinations during the scheduled period.
- Weekly chat sessions are optional.

<table>
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<tr>
<th>Week Assignment is placed on WEB</th>
<th>Topic</th>
<th>Reading Assignments &amp; Homeworks</th>
<th>Due Date for Homework</th>
<th>Examinations/Material is Included</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Review: Male Reproductive System, Spermatogenesis &amp; Hormonal Control</td>
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<td>Review: Fertilization &amp; Early Implantation</td>
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<td>Week 3</td>
<td>Clinical Evaluation for Male Infertility</td>
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<td>Semen Analysis: Macroscopic</td>
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<td><strong>Exam I</strong></td>
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<td><strong>Weeks 1-3</strong></td>
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<td>Semen Analysis: Microscopic</td>
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<td>Male Factor Infertility Diagnostic Categories</td>
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<td><strong>Exam II</strong></td>
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<td>Treatment Options for Male Infertility</td>
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<td>Micromanipulation Procedures (ICSI)</td>
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<td>Treatment Options using Epididymal and Testicular Sperm</td>
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<td>Correlation of Semen Analysis with Biochemical &amp; Immunology Testing</td>
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<td>Case Studies</td>
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<td>Week 14</td>
<td>Case Studies</td>
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<td>Summary/Review</td>
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<td>Week 16</td>
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<td>TBA</td>
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</table>

Material will remain on the web for 3 week periods; weekly chat sessions TBA
CSC 617  REPRODUCTIVE IMMUNOLOGY & MICROBIOLOGY

Lecture:  Distributed Learning Format: one semester

PROFESSOR:  Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE:  201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER:  (859) 323-1100 ext. 241
E-MAIL  dbake0@uky.edu
ED. COORDINATOR:  Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER:  (859) 323-5150
E-Mail  kcamp1@pop.uky.edu

Course Description:  – Reproductive Immunology & Microbiology – I credit hour.  Prerequisites:  CSC 528 and CSC 615.  A review of basic immunology will be covered including an overview of the organs, tissues and cells that comprise the immune system, different forms of immunity and the basis of the immune response.  The reproductive immunology segment will focus on antibodies associated with infertility and reproductive failure, and also will include properties of the immune system during pregnancy.  Microbiology will be covered as it pertains to assisted reproductive technology, focusing on:  (1) causes of infertility and reproductive failure; (2) infectious agents that may be transmitted in the assisted reproductive technology (ART) laboratory and (3) prevention of contamination in the ART facility.

Objectives:  By the end of the course, the student will demonstrate that he/she will/can:
• Define basic immunology terms (examples: antibody, immunoglobulin, hapten).
• State organs, tissues and cells that comprise the immune system.
• Compare and contrast innate and adaptive immunity and discuss the mechanisms of defense each exhibits.
• Distinguish passive, active and adoptive forms of specific immunity.
• Draw the structure of an immunoglobulin, label functional parts.
• Describe the classes of immunoglobulins, including general structure, primary function and location.
• Describe the steps in antigen processing.
• Discuss the role of complement in an immune response.
• Describe antigen-antibody binding and list methods of detection.
• Discuss the immune response as related to implantation and early development in humans.
• Explain why men do not have an immunological response to spermatozoa.
• Discuss antisperm antibodies as a cause of infertility and fetal loss.
• Distinguish microagglutinating, cytotoxic and immobilizing antisperm antibodies and determine the appropriate diagnostic testing for each.
• Describe treatments for anti-sperm antibodies in both the male and the female.
• Discuss the use of serological methods for the detection of infectious disease.  Give examples for organisms associated with infertility and reproductive failure.
• Reproduce a flow chart for the general classification of microorganisms (prions, viruses, bacteria, fungi, protozoa); include basic organism characteristics initial steps for identification.
• List normal flora for the male and female genitourinary tracts.
• List specific organisms associated with infertility and reproductive failure, including genital ulcer diseases, HVP infections, vaginitis syndromes, urethritis, cervicitis, prostates syndromes, and blood borne pathogens.  For each organism, include a brief background, epidemiology, mode of transmission, clinical picture and diagnosis, laboratory diagnosis, preferred testing and treatment.
• Describe the preferred methods to prevent contamination in the ART lab, focusing on sterility, sterile technique, and sterilization methods types; potential toxicity of agents used for cleaning and disinfection should be included.
Discuss methods to prevent transmission of infectious organisms in the ART laboratory including screening for patients and donors and routine laboratory surveillance.

List infectious agents that may be transmitted in the ART lab, and give the likely mode of transmission.

**Required text/references:**
None required

**References:**

**Books:**


CD-ROMS


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

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Journal of Microbiology
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Molecular Human Reproduction
Molecular Reproductive Development

Grading: CSC 615
Exam I 30%
Exam II 30%
Exam III 30%
Homework 10%

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<td>The Immune System &amp; Basic Terminology</td>
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<td>Defense Mechanisms for Innate &amp; Adaptive Immunity Specific Immunity</td>
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<td>Immunoglobulins, Antigen Processing, Role of Complement &amp; Antibody Binding</td>
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<td>Week 4</td>
<td>Immune Response in Implantation &amp; Early Embryonic Development</td>
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<td>Week 5</td>
<td><strong>Exam I</strong></td>
<td>TBA</td>
<td>TBA</td>
<td>Weeks 1-3</td>
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<td>Week 6</td>
<td>Role &amp; Methods of Detection of Antisperm Antibodies &amp; Treatment Options</td>
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<td>Week 7</td>
<td>Classification of Microorganisms &amp; Initial Steps for Identification</td>
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<td>Week 8</td>
<td><strong>Exam II</strong></td>
<td>TBA</td>
<td>TBA</td>
<td>Weeks 4 &amp; 6</td>
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<td>Week 9</td>
<td>Normal Flora of Male &amp; Female</td>
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<td>Genitourinary Tracts</td>
<td>Organisms Associated with Reproductive Failure &amp; Infertility</td>
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<td>Organisms Associated with Reproductive Failure &amp; Infertility</td>
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<tr>
<td>Week 12</td>
<td>Laboratory Contaminants; Disinfection &amp; Sterility for the ART Laboratory</td>
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<td>Week 13</td>
<td>Exam III</td>
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<td>TBA</td>
<td>Weeks 7, 9-11</td>
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<td>Week 14</td>
<td>Infectious Agents Transmitted in the ART Laboratory &amp; Mode of Transmission</td>
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<td>Screening &amp; Other Methods to Prevent Transmission of Infectious Agents in the ART lab</td>
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<td>Exam IV</td>
<td>TBA</td>
<td>TBA</td>
<td>Weeks 12, 14-15</td>
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Material will remain on the web for 3 week periods; weekly chat sessions TBA
CURRICULUM CHANGES FOR RLS GRADUATE CERTIFICATE

Background
The proposal for the Graduate Certificate in Reproductive Laboratory Science (RLS) was approved by the CAHP Academic Council in Fall, 2001 (Appendix A; original proposal) and by the Graduate School (Appendix B; letter of approval from Dr. Jim O’Reilly) on April 24, 2001.

Since the proposal did not reach the Senate until early June, 2001, it was not possible to receive formal approval for Summer, 2001. Dr. Bill Fortune, President of the University Faculty Senate was willing to ‘fast track’ the proposal, but expressed concern that 9 credit-hours were not sufficient to cover the course material. Following meetings with Dr. Fortune, Dr. Lori Gonzalez, CAHP Dean for Academic Affairs and representatives from the Graduate School, the RLS faculty decided to offer the Graduate Certificate as a pilot for the 8-week Summer session, 2001 to address this concern.

Four students completed the following courses during Summer, 2001 in order to receive the Graduate Certificate in RLS:

- GS-21 Special Topical Graduate Course: Andrology
- GS-22 Special Topic Graduate Course: Assisted Reproductive Technology
- GS-23 Special Topical Graduate Course: Management, Ethics, Policy & Legal Issues in Assisted Reproduction
- GS-24 Special Topical Graduate Course: Clinical Practica in Andrology and ART

Although the Graduate Certificate was successful, and graduates are now employed in assisted reproductive technology (ART) laboratories, by the end of the session, both the RLS faculty and the students concurred with Dr. Fortune that 9 credit-hours were not adequate for the material that must be covered. Also, it was determined that since many of the human ART/embryology procedures can legally only be observed by students during the laboratory rotation, hours for the clinical practica should be decreased by one credit hour, and additional time should be added to the campus-based RLS courses which include student laboratories. This would allow students to acquire more hands-on practice in embryology using animal models.

Following a review of the course content, the RLS faculty decided that the material should be offered in 12 credit hours, a time frame more consistent with other graduate certificate programs offered by the University of Kentucky. Following this decision, Dr. Doris Baker, Director of the RLS Graduate Certificate and Dr. Lori Gonzalez met with Dr. Fortune and with Dr. Nash to determine how to best deliver the graduate certificate in reproductive laboratory science. Dr. Fortune suggested that, since courses were similar for both the RLS track in the MSc program in Clinical Sciences and the RLS Graduate Certificate, revisions be made to accommodate both groups of students in the same class. Since students for the graduate certificate and the RLS track for the MSc are from different populations, there is not a competition among programs. The majority of
students for the MSc are individuals with a B.S. degree in science who are not yet employed or those with an undergraduate degree who are currently employed in ART laboratories. Candidates for the RLS Graduate Certificate are primarily individuals who already hold graduate degrees, but who need the clinical training in order to be marketable. Combing the two groups for instruction is logical in terms of both efficiency and economy. One graduate faculty and one adjunct faculty are currently responsible for all courses for both the RLS track in the MSc program and the RLS graduate certificate, as well as supervision of all students in andrology and ART clinical practica. Numerous guest lecturers contribute to the RLS programs. All are experts in the RLS discipline in which they teach. The guest lecturers are tantamount to the success of RLS education, not only because they assist with the teaching load, but it is essential that physicians and scientists, current in the field, contribute to the instruction. Guest lecturers are professionals from the University of Kentucky, the region and the nation. In addition to the roster of guest lecturers, members of industry contribute to the RLS programs, providing laboratory materials, instructors for equipment use, and expensive instruments not presently available at U.K. due to limited resources. Although all guest instructors and members of industry are willing to contribute to the programs annually, the majority are unable to make this commitment more than once yearly.

The following table summarizes the courses for the RLS Graduate Certificate, credit hours, times taught and delivery method.

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<th>CURRENT</th>
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CSC 615 Reproductive Laboratory Science 1 Distribut learning
CSC 617 Reproductive Microbiology & Immunology 1 Distribut learning
CSC 618 Labs in Andrology, Reproductive Microbiology & Immunology 1 Campus modular

DL (distributive learning) courses will be available on a semester basis. Modular units will be offered during the 8-week Summer Session. See following page for explanation.
The advanced, and laboratory intense, campus-based RLS courses will be offered in a modular format of 1-3 week sessions. Since modular units will contain large amounts of didactic material and student laboratories will be limited to practice with animal oocytes and embryos, the following compensations will be incorporated:

- Students will receive introductory materials prior to the commencement of the modular unit.
- Final evaluation for each modular unit will not occur until the end of the semester, giving students time to reflect and time to complete the clinical practica where they will gain experience in the clinical setting with human oocytes and embryos in the clinical setting.

Refer to Course syllabi in Appendix H and to Appendix I for calendar for delivery of modular courses.
REPRODUCTIVE LABORATORY SCIENCE (RLS)

REPRODUCTIVE LABORATORY SCIENCE (RLS) GRADUATE CERTIFICATE after revisions

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<td>CSC 616</td>
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<td>Distance</td>
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<td>Lecture</td>
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<td>Distance</td>
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<td>Labs in Andro, Repro Immuno &amp; Repro Micro</td>
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<td>Policy, Management, Ethical &amp; Legal Issues in ART</td>
<td>CSC 625</td>
<td>Lecture</td>
<td>2</td>
<td>UK campus mod</td>
</tr>
<tr>
<td>Andrology Clinical Practicum</td>
<td>CSC 626</td>
<td>Clinical Practicum/Project</td>
<td>1</td>
<td>Clinical Andrology</td>
</tr>
<tr>
<td>ART Clinical Practicum</td>
<td>CSC 627</td>
<td>Clinical Practicum/Project</td>
<td>1</td>
<td>Clinical ART lab</td>
</tr>
</tbody>
</table>

** CSC 528 is a required prerequisite for non-clinical lab science students planning to enter either the Reproductive Laboratory Science track in the Clinical Science graduate program or the RLS Graduate Certificate. CSC 528 will be offered on the UK campus in modular format prior to RLS Modular Unit I (Intersession).

Distance learning courses will be available on a semester basis.
Modular units will be offered during the 8-week Summer Session.
*variable credit for flexibility and in order for the same course to be used for M.S. and RLS certificate

** CSC 528 is a required prerequisite for non-clinical lab science students planning to enter either the Reproductive Laboratory Science track in the Clinical Science graduate program or the RLS Graduate Certificate. CSC 528 will be offered on the UK campus in modular format prior to RLS Modular Unit I (Intersession).

Distance learning courses will be available on a semester basis.
Modular units will be offered during the 8-week Summer Session.

New courses
Same laboratory as above—not additional credit hour
New core courses for the RLS track

Admissions criteria:
Selective admissions:
- Requirements for Graduate School admission to the University of Kentucky
- Bachelor’s degree in Clinical Laboratory Science (Medical Technology) OR
- Bachelor’s degree in science with acceptable laboratory experience

Acceptance will be based on:
- Interview score with RLS committee
# Courses for the RLS track for the MSc in Clinical Sciences & Courses for the RLS Graduate Certificate

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Delivery Method</th>
<th>Required for RLS Track for MSc?</th>
<th>Credit Hours required</th>
<th>Required for Graduate Certificate?</th>
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<tbody>
<tr>
<td>CSC 528</td>
<td>Laboratory Techniques</td>
<td>Campus modular</td>
<td>Yes, if needed</td>
<td>2</td>
<td>Yes, if needed</td>
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<tr>
<td>CSC 605, 606 or STA 570; other</td>
<td>Graduate Statistics</td>
<td>Traditional or DL or transfer credit*</td>
<td>Yes</td>
<td>3-4</td>
<td>No</td>
</tr>
<tr>
<td>CSC 600, NURS 653 or other</td>
<td>Graduate Physiology</td>
<td>Traditional or DL or transfer credit*</td>
<td>Yes</td>
<td>3-4</td>
<td>No</td>
</tr>
<tr>
<td>TBD</td>
<td>Graduate science courses from:</td>
<td>Traditional or DL or transfer credit*</td>
<td>Yes</td>
<td>3-6</td>
<td>No</td>
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<td>CSC 615</td>
<td>Reproductive Laboratory Science</td>
<td>DL</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
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<tr>
<td>CSC 616</td>
<td>Andrology</td>
<td>DL</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
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<tr>
<td>CSC 617</td>
<td>Reproductive Microbiology &amp; Immunology</td>
<td>DL</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>CSC 618</td>
<td>Laboratories in Andrology, Reproductive Microbiology &amp; Immunology</td>
<td>Campus modular</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>CSC 621</td>
<td>Embryology &amp; ART</td>
<td>Campus modular</td>
<td>Yes</td>
<td>3</td>
<td>Yes</td>
</tr>
<tr>
<td>CSC 624</td>
<td>Gamete &amp; Embryo Cryopreservation</td>
<td>Campus modular</td>
<td>Yes</td>
<td>1</td>
<td>Yes</td>
</tr>
<tr>
<td>CSC 625</td>
<td>Management, Policy, Ethical &amp; Legal Issues in ART</td>
<td>Campus modular</td>
<td>Yes</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>CSC 628</td>
<td>RLS Seminar</td>
<td>Campus modular</td>
<td>Yes</td>
<td>1-2</td>
<td>No</td>
</tr>
<tr>
<td>CSC 630</td>
<td>RLS Research</td>
<td>Campus or campus and home lab</td>
<td>Yes</td>
<td>3-5</td>
<td>No</td>
</tr>
<tr>
<td>CSC 626</td>
<td>Andrology Clinical Practicum</td>
<td>Clinical Andrology lab</td>
<td>Clinical Practicum in Andrology</td>
<td>2</td>
<td>Yes</td>
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<tr>
<td>CSC 627</td>
<td>ART Clinical Practicum</td>
<td>Clinical ART lab</td>
<td>Clinical Practicum in ART</td>
<td>3</td>
<td>Yes</td>
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<td><strong>Total</strong></td>
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<td></td>
<td><strong>30-38 Credit hours</strong></td>
<td><strong>12-14 Credit hours</strong></td>
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Admissions Criteria for MSc in CSC

Selective admissions:
- Meet requirements for Graduate School admission to the University of Kentucky
- Bachelor’s degree in Clinical Laboratory Sciences (Medical Technology)
  OR
- Bachelor’s degree in science with acceptable laboratory experience AND
- GRE scores (minimum TBD) AND
- Minimum GPA = 2.75

Acceptance will be based on:
- Interview score with CSC Admissions Committee

Admissions criteria for RLS Graduate Certificate

Selective Admissions:
- Requirement for Graduate School admission to the University of Kentucky
- Bachelor’s degree in Clinical Laboratory Science (Medical Technology) OR
- Bachelor’s degree in science with acceptable laboratory experience

Acceptance will be based on:
- Interview score with RLS committee
### Additional courses required for MSc degree following completion of the RLS Graduate Certificate

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>X, if required for Graduate Certificate</th>
<th>Credit Hours</th>
<th>X, if required for MSc</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 528</td>
<td>Laboratory Techniques</td>
<td>X, if needed</td>
<td>2</td>
<td>X, if needed</td>
<td>2</td>
</tr>
<tr>
<td>CSC 615</td>
<td>Reproductive Laboratory Science</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>CSC 616</td>
<td>Andrology</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>CSC 617</td>
<td>Reproductive Microbiology &amp; Microbiology</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
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<tr>
<td>CSC 618</td>
<td>Laboratories in Andrology, Reproductive Microbiology &amp; Immunology</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
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<tr>
<td>CSCv621</td>
<td>Embryology/ART</td>
<td>X</td>
<td>3</td>
<td>X</td>
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<td>CSC 624</td>
<td>Gamete &amp; Embryo Cryopreservation</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>1</td>
</tr>
<tr>
<td>CSC 625</td>
<td>Management, Policy, Ethical &amp; Legal Issues in ART</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>2</td>
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<tr>
<td>CSC 626</td>
<td>Andrology Clinical Practicum</td>
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<td>X</td>
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<td>CSC 627</td>
<td>ART Clinical Practicum</td>
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**Total Credit Hours**: 12-14

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>X, if required for Graduate Certificate</th>
<th>Credit Hours</th>
<th>X, if required for MSc</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CSC 626</td>
<td>Clinical Practicum in Andrology (additional cr hours)</td>
<td>X</td>
<td>1</td>
<td></td>
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<tr>
<td>CSC 627</td>
<td>Clinical Practicum in ART (additional credit hours)</td>
<td>X</td>
<td>2</td>
<td></td>
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</tr>
<tr>
<td>CSC 628</td>
<td>RLS Seminar</td>
<td>X</td>
<td>1-2</td>
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<tr>
<td>CSC 630</td>
<td>RLS Research for MSc</td>
<td>X</td>
<td>3-5</td>
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<td>CSC 605, 606 or STA 570; other</td>
<td>Graduate Statistics</td>
<td>X</td>
<td>3-4</td>
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<td>CSC 600, NURS 653; other</td>
<td>Graduate Physiology</td>
<td>X</td>
<td>3-4</td>
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<td>- Cell &amp; Molecular Biology</td>
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<td>- Genetics</td>
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<td>- Endocrinology</td>
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<td>- Microbiology</td>
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<td></td>
<td>- Other</td>
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**Total Credit Hours**: 16-24

**Minimum of 30 CREDIT HOURS required for MSc degree**

### Student Progression through the Programs: Examples

#### Student 1: MSc Full Time

<table>
<thead>
<tr>
<th>Class</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Class</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Class</th>
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<th>C/DL</th>
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<tbody>
<tr>
<td>STA 570</td>
<td>4</td>
<td>C</td>
<td>CSC 600 Hum Path</td>
<td>4</td>
<td>DL</td>
<td>CSC 528 –Lb Tec (IS)</td>
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<td>C</td>
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<tr>
<td>Microbiology</td>
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<td>C</td>
<td>CSC 615 RLS</td>
<td>1</td>
<td>DL</td>
<td>CSC 618 Lab And</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>Genetics</td>
<td>3</td>
<td>C</td>
<td>CSC 616 Andrology</td>
<td>1</td>
<td>DL</td>
<td>CSC 621 Emb &amp; ART</td>
<td>3</td>
<td>C</td>
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</table>

**Fall 1** | **Spring 1** | **Summer 1**
### Student 2: MSc Part Time

<table>
<thead>
<tr>
<th>Fall 1</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Spring 1</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Summer 1</th>
<th>Cr Hr</th>
<th>C/DL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microbiology</td>
<td>3</td>
<td>C</td>
<td>CSC 600 Hum Path</td>
<td>4</td>
<td>DL</td>
<td>CSC 528 –Lb Tec (IS)</td>
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<td>C</td>
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<tr>
<td>CSC 615 RLS</td>
<td>1</td>
<td>DL</td>
<td>CSC 618 Lab And</td>
<td>1</td>
<td>C</td>
<td>CSC 621 Emb &amp; ART</td>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>CSC 616 Andrology</td>
<td>1</td>
<td>DL</td>
<td>CSC 624 Gam &amp; Emb</td>
<td>1</td>
<td>C</td>
<td>CSC 625 Mgt, Pol..</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>CSC 617 Rep Mi/Im</td>
<td>1</td>
<td>DL</td>
<td>CSC 627 And CP</td>
<td>2</td>
<td>Sites</td>
<td>CSC 627 ART CP</td>
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<th>Cr Hr</th>
<th>C/DL</th>
<th>Spring 2</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Summer 2</th>
<th>Cr Hr</th>
<th>C/DL</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA 570 Bas St Ana</td>
<td>4</td>
<td>C</td>
<td>Cell &amp; Mol Biol</td>
<td>3</td>
<td>C</td>
<td>CSC 624 Gam &amp; Emb</td>
<td>1</td>
<td>C</td>
</tr>
<tr>
<td>CSC 627 And CP</td>
<td>2</td>
<td>Site</td>
<td>CSC 625 Mgt, Pol..</td>
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<td>C</td>
<td>CSC 628 RLS Sem</td>
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<th>Cr Hr</th>
<th>C/DL</th>
<th>Spring 1</th>
<th>Cr Hr</th>
<th>C/DL</th>
<th>Summer 1</th>
<th>Cr Hr</th>
<th>C/DL</th>
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</thead>
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<tr>
<td>CSC 627 ART CP</td>
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<td>Site</td>
<td>CSC 615 RLS</td>
<td>1</td>
<td>DL</td>
<td>CSC 528 –Lb Tec (IS)</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>CSC 616 Andrology</td>
<td>1</td>
<td>DL</td>
<td>CSC 618 Lab And</td>
<td>1</td>
<td>C</td>
<td>CSC 621 Emb &amp; ART</td>
<td>3</td>
<td>C</td>
</tr>
<tr>
<td>CSC 617 Rep Mi/Im</td>
<td>1</td>
<td>DL</td>
<td>CSC 624 Gam &amp; Emb</td>
<td>1</td>
<td>C</td>
<td>CSC 625 Mgt, Pol..</td>
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<td>C</td>
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<td>Sites</td>
<td>CSC 627 And CP</td>
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<td>Sites</td>
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<td>Total Hrs</td>
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## MSc TIME LINE FOR FULL TIME STUDENT: EXAMPLE

### FALL - 1

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Delivery Method - Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 605, or CSC 606, or STA 570 or equivalent</td>
<td>Statistics</td>
<td>3-4</td>
<td>Campus or distributive learning (DL)</td>
</tr>
<tr>
<td>Science TBD*</td>
<td>2 courses selected from:</td>
<td>6-8</td>
<td>Campus or Distributive Learning. *Students will select science courses as needed, in consultation with the student advisory committee, to obtain needed background material for the RLS major.</td>
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<tr>
<td></td>
<td>• Cell &amp; Molecular Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Genetics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Endocrinology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Other</td>
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</tr>
</tbody>
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Total hours: 9-12 Credits will vary depending on courses selected.

### SPRING - 1

<table>
<thead>
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<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Delivery Method - Explanation</th>
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<tbody>
<tr>
<td>CSC 600 or equivalent</td>
<td>Human Pathophysiology</td>
<td>4</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 615</td>
<td>Reproductive Laboratory Science</td>
<td>1</td>
<td>Distributive learning</td>
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<tr>
<td>CSC 616</td>
<td>Andrology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 617</td>
<td>Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>Science TBD*</td>
<td>1 course selected from:</td>
<td>3-4</td>
<td>Campus or Distributive Learning. *Students will select science courses as needed, in consultation with the student advisory committee, to obtain needed background material for the RLS major</td>
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<tr>
<td></td>
<td>• Cell &amp; Molecular Biology</td>
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<td></td>
<td>• Genetics</td>
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<td>• Endocrinology</td>
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</tr>
<tr>
<td></td>
<td>• Microbiology</td>
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<td></td>
</tr>
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<td></td>
<td>• Other</td>
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Total hours: 10-11 Credits will vary depending on courses selected.
<table>
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<th>Semesters</th>
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<tr>
<td>CSC 528</td>
<td>• Laboratory Techniques</td>
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<td>Campus</td>
<td>40</td>
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<td></td>
<td>- One week (40 hours)</td>
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<td></td>
<td>- Required for students not having acceptable laboratory background</td>
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<tr>
<td>CSC 618</td>
<td>• Laboratories in Andrology, Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Campus</td>
<td>40</td>
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<tr>
<td></td>
<td>- One week (40 hours)</td>
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<tr>
<td></td>
<td>- Includes hands-on labs that correspond to the distributed lecture courses</td>
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<tr>
<td>CSC 621</td>
<td>• Embryology &amp; ART</td>
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<td>Campus</td>
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<tr>
<td></td>
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<td>CSC 624</td>
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<td>Campus</td>
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<td>modular</td>
<td></td>
</tr>
<tr>
<td>CSC 628</td>
<td>• RLS Seminar</td>
<td>1</td>
<td>Campus</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>- &lt; One week (15 hours) per credit hour</td>
<td></td>
<td>modular</td>
<td></td>
</tr>
<tr>
<td>Total hours</td>
<td></td>
<td>10</td>
<td>Campus</td>
<td></td>
</tr>
<tr>
<td>FALL - 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSC 627</td>
<td>• Andrology Clinical Practicum</td>
<td>2</td>
<td>U.K.</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>- Students already employed in ART may complete portions of the Clinical</td>
<td></td>
<td>clinical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>practicum checklist in their home lab under the supervision of a qualified</td>
<td></td>
<td>affiliation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>laboratory director.</td>
<td></td>
<td>site</td>
<td></td>
</tr>
<tr>
<td>CSC 627</td>
<td>• ART Clinical Practicum</td>
<td>3</td>
<td>U.K.</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>- Students already employed in ART may complete portions of the Clinical</td>
<td></td>
<td>clinical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>practicum checklist in their home lab under the supervision of a qualified</td>
<td></td>
<td>affiliation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>laboratory director.</td>
<td></td>
<td>site</td>
<td></td>
</tr>
<tr>
<td>CSC 630</td>
<td>• RLS Research</td>
<td>4-5</td>
<td>Campus</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>- Students already employed in ART may complete portions of the research</td>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>project in their home lab under the supervision of a qualified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>laboratory director; UK faculty member will assist with the research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>project and collaborate with the ART supervisors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total hours</td>
<td></td>
<td>9-10</td>
<td>Campus</td>
<td></td>
</tr>
<tr>
<td>Total hours for MSC</td>
<td></td>
<td>38-43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### MSc TIME LINE FOR PART-TIME STUDENT: EXAMPLE

<table>
<thead>
<tr>
<th>FALL - 1</th>
<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Delivery Method - Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>TBD*</td>
<td>1-2 courses selected from:</td>
<td>3-8</td>
<td>Campus or Distributive Learning or transfer from another</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cell &amp; Molecular Biology</td>
<td></td>
<td>*Students will select science courses as needed, in consult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Genetics</td>
<td></td>
<td>with the student’s advisory committee, to obtain needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Endocrinology</td>
<td></td>
<td>background material for the RLS major.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total hours</td>
<td>3-8</td>
<td>Credits will vary depending on courses selected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPRING - 1</th>
<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Delivery Method - Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 600 or</td>
<td></td>
<td>Human Pathophysiology</td>
<td>4</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>equivalent</td>
<td></td>
<td>Reproductive Laboratory Science</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 615</td>
<td></td>
<td>Andrology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 616</td>
<td></td>
<td>Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUMMER - 1</th>
<th>Course #</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Delivery Method - Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 528</td>
<td></td>
<td>Laboratory Techniques</td>
<td>2</td>
<td>Campus modular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Required for students not having acceptable laboratory back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSC 618</td>
<td></td>
<td>Laboratories in Andrology, Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Campus modular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes hands-on labs that correspond to the distributed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>learning courses CSC 616 and CSC 617.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSC 621</td>
<td></td>
<td>Embryology &amp; ART</td>
<td>3</td>
<td>Campus modular</td>
</tr>
</tbody>
</table>

| Total hours | 6 | }
### Fall - 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 627</td>
<td>Andrology Clinical Practicum</td>
<td>2</td>
<td>U.K. clinical affiliation site (sites located throughout U.S.) Students already employed in ART may complete portions of the Clinical practicum checklist in their home lab under the supervision of a qualified laboratory director.</td>
</tr>
<tr>
<td>CSC 605, or CSC 606, or STA 570 or equivalent</td>
<td>Statistics</td>
<td>3-4</td>
<td>Campus or distributed learning (DL)</td>
</tr>
</tbody>
</table>

Total hours: 5-6

### Spring - 2

<table>
<thead>
<tr>
<th>Science TBD*</th>
<th>1 course selected from:</th>
<th>3-4</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cell &amp; Molecular Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Genetics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Endocrinology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Students will select science courses as needed, in consultation with the student’s advisory committee, to obtain needed background material for the RLS major.</td>
</tr>
</tbody>
</table>

Total hours: 3-4

### Summer - 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 624</td>
<td>Gamete &amp; Embryo Cryopreservation</td>
<td>1</td>
<td>Campus modular</td>
</tr>
<tr>
<td>CSC 625</td>
<td>Management, Policy, Ethical &amp; Legal Issues in ART</td>
<td>2</td>
<td>Campus modular</td>
</tr>
<tr>
<td>CSC 628</td>
<td>RLS Seminar</td>
<td></td>
<td>Campus modular</td>
</tr>
</tbody>
</table>

Total hours: 1-2

### Fall - 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 627</td>
<td>ART Clinical Practicum</td>
<td>3</td>
<td>U.K. clinical affiliation site (sites located throughout U.S.) Students already employed in ART may complete portions of the Clinical practicum checklist in their home lab under the supervision of a qualified laboratory director.</td>
</tr>
<tr>
<td>CSC 630</td>
<td>RLS Research</td>
<td>3-4</td>
<td>Complete research project</td>
</tr>
</tbody>
</table>

Total hours: 6-7

**Total hours for MSc**: 34-42
# TIME LINE FOR RLS GRADUATE CERTIFICATE

## SPRING

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 615</td>
<td>Reproductive Laboratory Science</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 616</td>
<td>Andrology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
<tr>
<td>CSC 617</td>
<td>Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Distributive learning</td>
</tr>
</tbody>
</table>

**Total hours:** 3

## SUMMER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 528</td>
<td>Laboratory Techniques</td>
<td>2</td>
<td>Campus modular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Required for students not having acceptable laboratory background.</td>
</tr>
<tr>
<td>CSC 618</td>
<td>Laboratories in Andrology, Reproductive Microbiology &amp; Immunology</td>
<td>1</td>
<td>Campus modular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Includes hands-on labs that correspond to the distributed learning courses CSC 616 and CSC 617</td>
</tr>
<tr>
<td>CSC 621</td>
<td>Embryology &amp; ART</td>
<td>3</td>
<td>Campus modular</td>
</tr>
<tr>
<td>CSC 624</td>
<td>Gamete &amp; Embryo Cryopreservation</td>
<td>1</td>
<td>Campus modular</td>
</tr>
<tr>
<td>CSC 625</td>
<td>Management, Policy, Ethical &amp; Legal Issues in ART</td>
<td>2</td>
<td>Campus modular</td>
</tr>
<tr>
<td>CSC 627</td>
<td>Andrology Clinical Practicum</td>
<td>1</td>
<td>U.K. clinical affiliation site (sites located throughout)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Students already employed in ART may complete portions of the Clinical practicum checklist in their home lab under the supervision of a qualified laboratory director.</td>
</tr>
<tr>
<td>CSC 627</td>
<td>ART Clinical Practicum</td>
<td>1</td>
<td>U.K. clinical affiliation site (sites located throughout)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Students already employed in ART may complete portions of the Clinical practicum checklist in their home lab under the supervision of a qualified laboratory director.</td>
</tr>
</tbody>
</table>

**Total hours:** 12-14
# Calendar for Delivery of Modular Courses

## First Summer Session

<table>
<thead>
<tr>
<th>Week #</th>
<th>Course Offered</th>
<th>Cr Hrs</th>
<th>Continuous Evaluation</th>
<th>Final Evaluation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CSC 528 – Laboratory Techniques</td>
<td>2</td>
<td>Quizzes, Lab Practicals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>Exam</td>
<td></td>
</tr>
</tbody>
</table>

## Second Summer Session

**Pre-week 1**  
Reading assignments for: CSC 621 and 624  
To provide background materials prior to intensive modular lab-based courses.

<table>
<thead>
<tr>
<th>Week #</th>
<th>Course Offered</th>
<th>Cr Hrs</th>
<th>Continuous Evaluation</th>
<th>Final Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CSC 618 – Labs in Andrology, Reproductive Microbiology and Immunology</td>
<td>1</td>
<td>Homeworks, Quizzes</td>
<td>End of week 1/Exam</td>
</tr>
<tr>
<td>2</td>
<td>CSC 621 – Embryology &amp; ART</td>
<td>3</td>
<td>Homeworks, Quizzes, Computer tutorial quizzes, Lab evaluation</td>
<td>End of week 8/Exam</td>
</tr>
</tbody>
</table>

- Labs correlate to courses, CSC 617; students have the material during an entire semester prior to their modular course practice in the lab.
- The final exam given at the end of week 8 to all students:
  - time to assimilate the presented week
  - to gain exposure to clinical exam (all students toured ART, the Graduate Certificate students will have clinical practice exposure to this exam)
<table>
<thead>
<tr>
<th></th>
<th>Course Description</th>
<th>Credits</th>
<th>Requirements</th>
<th>Due Date</th>
</tr>
</thead>
</table>
| 4 | CSC 624 – Gamete & Embryo Cryopreservation               | 1       | Homeworks, Quizzes, Computer tutorial quizzes, Lab evaluation | End of week 8/Exam The final exam will be given at the end of week 8 to all students:  
|   |                                                           |         |                                                  | time to prepare for the exam  
|   |                                                           |         |                                                  | to gain experience in clinical environments (all students will have clinical practice at this exam) |
| 5 | CSC 625 – Management, Policy, Ethical and Legal Issues in ART | 2       | Homework, Quiz, Student presentation             | End of week 8: Papers/projects:  
|   |                                                           |         |                                                  |  
|   |                                                           |         |                                                  | o management project  
|   |                                                           |         |                                                  | o paper on an issue in ART |
| 6 | CSC 626 – Andrology Clinical Practica                     | 1       | Checklist                                        | Completion of checklist Students must complete C assignments |
| 7 | CSC 627 – ART Clinical                                    | 1       | Checklist                                        | Completion of checklist Students must complete C assignments |
| 8 |                                                           |         |                                                  | Final Evaluations papers and projects due |
CSC 528  LABORATORY TECHNIQUES

Lecture: Tuesday 9-10 a.m.
MDR #3 Room 124

Lab: Thursday 9-11 a.m.
MDR #3 Room 124

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE: 201B CAHP Building, 121 Washington Avenue
PHONE NUMBER: (859) 323-1100 ext. 241
OFFICE HOURS: Immediately after class or by appointment
LAB INSTRUCTOR: Kim , Campbell M.S., MT(ASCP) (phone: 323-5150)

Course Description:
Lecture: An introduction to basic clinical laboratory principles and techniques. The course covers laboratory safety, pipetting methods, microscopy for light, phase, stereo and inverted microscopes; chamber counts, sterilization rationale and procedures, routine cultures and staining procedures, laboratory math calculations and statistics, quality control and quality assurance, chain of custody and laboratory reporting.

Laboratory: During the laboratory segment students will calibrate and correctly use standard pipettes, perform light, phase, stereo and inverted microscopy, including scope calibration; perform chamber counts using the Neubauer hemacytomter, Makler chamber, and Cell-Vu; perform routine sterilization procedures; media preparation and routine culture techniques; perform staining including Gram’s, Wright’s and Papainacolaou stains; perform laboratory math calculations including basic laboratory statistics, chamber count data; properly interpret the Levy-Jennings chart and correctly use the Westgard Rules. Consent of instructor required for non-CSC students.
General Course Objectives CSC 528:

Lecture Component

By the end of the course the student will be able to:

1. Understand all clinical laboratory safety rules and regulations required by CLIA, OSHA, FDA and EPA.
2. Describe the various pipettes and correct usage for each.
3. Describe the principles for light, phase, stereo and inverted microscopy; discuss the potentials uses for each type of microscope.
4. Compare and contrast the counting chambers routinely used in the reproductive laboratory, to include usage, chamber properties (e.g. depth), calculations and limitations.
5. Describe the proper sterilization procedure for media, instruments and glassware.
6. List the step for routine culture methods including media selection, proper isolation, incubation conditions, and interpretation of results as related to reproductive microbiology.
7. Describe the principle and application for each staining technique covered.
8. Understand basic clinical laboratory math principles and statistical calculations.
9. Discuss pre-analytical, analytical, and post-analytical quality control and quality assurance methods, including personnel requirements, instrument calibration and maintenance, development of procedure manuals, corrective action and quality improvement.
10. Describe proper chain of custody from the time of specimen receipt through reporting of results and discuss the legal implications when this procedure is not followed correctly.

General Course Objectives for CSC 528:

Laboratory Component

By the end of the course the student will be able to:

1. Observe all safety rules while working in the student and clinical laboratory.
2. Use aseptic technique when performing laboratory procedures.
3. Choose the correct pipette for the intended purpose.
4. Pipette accurately and efficiently, selecting the appropriate pipette for each task.
5. Appropriate use light, phase, stereo and inverted microscopy.
6. Calibrate the light microscope.
7. Make accurate dilutions and perform calculations for selected laboratory tasks.
8. Accurately perform counts using the Neubauer hemacytometer, Makler chamber and Cell-Vu.
9. Perform routine disinfection and sterilization procedures.
11. Select appropriate media and culture conditions for specimens.
12. Successfully perform colony isolation using plate streaking techniques.
13. Successfully perform semi-quantitative colony counts from cultured specimen.
14. Make Gram stains according to the required standards and accurately interpret the results.
15. Perform Wright’s stain and Papainacolaou stains according to the required standards and accurately interpret the results.
16. Accurately perform basic laboratory math calculations.
17. Describe and differentiate quality control and quality assurance.
18. Accurately construct, plot and evaluate quality control charts.
19. Describe proper chain of custody procedures for laboratory specimens.
20. Generate written reports, including tables, use word processor software.

Required Text:


Reference Texts:


Grading: CLS 615

Exam I 20%
Exam II 20%
Exam III 20%
Exam Final 25%
Lab Reports 10%
Lab Project 5%

Grading Scale:

A  90-100%  F  below 60%
B  80-89%
C  70-79%
D  60-69%

Course Policies:

1. Class attendance is expected for all sessions. Please notify the professor directly if you find it necessary to miss a session.

2. Please see the professor during the first two weeks of class if you have any conflicts in scheduling due to religious observances.

3. With the exception of a documented emergency, there will be no make-up tests for students who are absent or late for an exam.

4. Homework assignments should reflect individual work, and are due the following class period. Late homeworks will not be accepted.

5. Proper laboratory attire is required at all times. Laboratory safety rules must be followed at all times. Any student, not properly attired, will be asked to leave the laboratory session. Any student, not following laboratory safety protocol, will be asked to leave the laboratory session.
<table>
<thead>
<tr>
<th>DATE</th>
<th>LECTURE TOPIC</th>
<th>LAB EXERCISES</th>
<th>LAB REPORTS &amp; ASSIGNMENTS</th>
<th>QUIZZES &amp; EXAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>Safety</td>
<td>o Safety exercise&lt;br&gt; o Practice pipetting&lt;br&gt; o Pipette calibration</td>
<td></td>
<td>Lab report</td>
</tr>
<tr>
<td>Day 2</td>
<td>Microscopy</td>
<td>o Care &amp; use of Microscope&lt;br&gt; o calibration of light Microscope&lt;br&gt; o Use of various microscopes&lt;br&gt; o Perform chamber counts using Neubauer hemacytometer&lt;br&gt; o Perform calculations&lt;br&gt; o Perform counts using the Makler and Cell-Vu chambers&lt;br&gt; o Perform calculations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 3</td>
<td>Sterilization, Culture</td>
<td>o Run autoclave&lt;br&gt; o Media selection&lt;br&gt; o Plating and Culture&lt;br&gt; o Interpret culture results&lt;br&gt; o Perform Gram stain&lt;br&gt; o Perform Wright’s stain&lt;br&gt; o Perform Pap stain</td>
<td>Lab report</td>
<td>Quiz</td>
</tr>
<tr>
<td>Day 4</td>
<td>Lab Math, Quality control and Quality Assurance</td>
<td>o Interpret culture results&lt;br&gt; o Perform calculations for problems sets&lt;br&gt; o Developing quality control charts&lt;br&gt; o Calibrate selected instruments&lt;br&gt; o Construct personnel file&lt;br&gt; o Corrective action: o Problem-solving exercise</td>
<td>Lab report</td>
<td></td>
</tr>
<tr>
<td>Day 5</td>
<td>Lab Reporting, Chain of custody</td>
<td>o Generate lab report&lt;br&gt; o Chain of custody exercise</td>
<td>Lab report</td>
<td>Quiz</td>
</tr>
<tr>
<td>Day 5</td>
<td></td>
<td>o Project: Write a laboratory procedure for the manual according to NAACLS Guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 3</td>
<td></td>
<td>Final Exam Projects due</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CSC 618  LABORATORIES IN ANDROLOGY, REPRODUCTIVE MICROBIOLOGY AND IMMUNOLOGY

Lecture:  Campus modular format

PROFESSOR:  Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE:  201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER:  (859) 323-1100 ext. 241
E-MAIL:  dbake0@uky.edu
ED. COORDINATOR:  Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER:  (859) 323-5150
E-Mail  kkcamp1@pop.uky.edu

Course Description:  Laboratories in Andrology, Reproductive Microbiology and Immunology  1 credit hour:
Prerequisites:  CSC 528, CSC 615, CSC 616, and CSC 617 or consent of instructor.

Andrology:  Student laboratories will focus on semen analysis, sperm function tests, and preparation of partner and donor semen for artificial insemination.  Advanced andrology procedures, including the sperm penetration assay and the hemi-zona assay, will be discussed and protocols provided.

Reproductive Immunology:  Students will perform procedures for detecting antisperm antibodies in semen and in serum.  Sperm-cervical mucus testing and cross-testing will be performed using controlled donor semen and bovine cervical mucus.

Reproductive Microbiology:  Organisms associated with sexually transmitted diseases, infertility, and reproductive failure will be demonstrated with representative demonstrations consisting of: stained slide of bacteria, fungi and parasites and electron micrographs of viruses; organisms on appropriate culture media; examples of testing for identification.  Students will use data from the demonstrations to develop summaries for the correct isolation and identification of these organisms.

Objectives:  By the end of the course, the student will demonstrate that he/she will/can:

• Perform a comprehensive semen analysis acceptable for fertility diagnosis.
• Perform basic and complete morphology based on Strict Criteria; be familiar with other classification systems including WHO.
• Prepare a semen specimen for artificial insemination using two different methods.
• Perform all calculations for a sperm fraction concentration.
• Discuss advanced andrology procedures designed to detect: capacitation; acrosome reaction; zona binding; sperm penetration.
• Perform screening assays for antisperm antibodies
• Perform direct and indirect testing for antisperm antibodies.
• Interpret a post-coital test.
• Perform sperm-cervical mucus testing and cross-testing.
• Interpret the sperm-cervical mucus cross test to determine which partner(s) are contributing to the infertility problem.  Set-up and perform quality assurance for the reproductive immunology laboratory.
• Demonstrate methods to prevent contamination and transmission of infectious agents in the ART laboratory.
• Using information from CSC 528, identify organisms associated with reproductive failure.
• Based on case studies, distinguish normal flora from pathogenic organisms in specimens from the male and female genito-urinary tracts.
• Based on accuracy, accessibility, and cost, determine the preferred testing for each of the organisms associated with infertility and reproductive failure.
• Set-up and perform quality assurance for the andrology laboratory and for the reproductive immunology and reproductive microbiology labs.


**References:**

**Books:**


VIDEOS:

Sperm Prep, Produced by Fertility Technologies, Inc., Natick, Ma.

Laboratory to Life; the Art and Science of Embryology; Produced by Serono Labs, Norwell, MA, 1994

CD-ROMS


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS

GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:
American Journal of Obstetrics & Gynecology
American Journal of Reproductive Endocrinology
Andrologia
Biology of Reproduction
Clinical Obstetrics & Gynecology
Contraception
Development
Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development

Grading: CSC 618
Quizzes 45%
Homeworks 15%
Lab Reports 10%
Exam 30%

Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
- Students are expected to review materials from CSC 616 and CSC 617 prior to commencement of CSC 618.
- Students must be totally familiar with the CD-Rom, “SATT 2000” prior to commencement of CSC 618.
  - Homework assignments are to be completed by the student without assistance.
  - Students are expected to complete all quizzes during the course and to complete the final exam at the end of course and to turn in the take-home portion on the examination the following week.
  - Students must complete examinations during the scheduled period.
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading Assignments &amp; Homeworks</th>
<th>Due Date for Homework</th>
<th>Quizzes, Exams</th>
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<tr>
<td>Pre-Day 1</td>
<td>“SATT 2000” CD, Reading assignments</td>
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<td>TBA</td>
<td>Day 2</td>
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<tr>
<td>Day 1 pm</td>
<td>Semen Analysis</td>
<td>TBA</td>
<td>Day 3</td>
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<tr>
<td>Day 2 am</td>
<td>Sperm morphology</td>
<td>TBA</td>
<td>Day 4</td>
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<tr>
<td>Day 2 pm</td>
<td>Prep for intrauterine insemination</td>
<td>TBA</td>
<td>Day 5</td>
<td>Quiz</td>
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<tr>
<td>Day 3 am</td>
<td>Anti-sperm antibodies</td>
<td>TBA</td>
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<tr>
<td>Day 3 pm</td>
<td>Sperm-cervical mucus interaction</td>
<td>TBA</td>
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<tr>
<td>Day 4 am</td>
<td>Microbiology lab demonstrations</td>
<td>TBA</td>
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<td>Quiz</td>
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<tr>
<td>Day 4 pm</td>
<td>Microbiology lab demonstrations</td>
<td>TBA</td>
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<tr>
<td>Day 5 am</td>
<td>Review</td>
<td>N/A</td>
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<td>Final Lab Exam</td>
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<td>Day 5 pm</td>
<td>Final Lab Practical</td>
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<td></td>
<td>Written take-home exam</td>
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<tr>
<td>Week 2</td>
<td>Turn in take-home portion of final examination</td>
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</table>
CSC 621  Embryology & ART
Campus modular

PROFESSOR:  Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE:  201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER:  (859) 323-1100 ext. 241
E-MAIL  dbake0@uky.edu
ED. COORDINATOR:  Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER:  (859) 323-5150
E-Mail  kkcamp1@pop.uky.edu

Course Description: Embryology & ART.  3 credit hours. Prerequisite(s) for course as changes:  CSC 528, CSC 615, CSC 616, CSC 617 and CSC 618 or consent of instructor.  Lecture: The course will include a review of the female reproductive system, fertilization and implantation.  The procedures appropriate for evaluation of female fertility will be presented and conditions and diseases associated with female factor infertility will be discussed. Basic and advanced tests and procedures for the treatment of infertility will be presented with a focus on assisted reproductive technology procedures, including in vitro fertilization and related procedures, micromanipulation, embryo culture, and third party reproduction.  Laboratory: The laboratory will focus on embryo culture and micromanipulation procedures using mouse oocytes and embryos and human spermatozoa. Students will set up quality control for the ART laboratory.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

- Understand the anatomy and physiology of the female reproductive tract and the embryo at peri-implantation
- Explain hormonal control of:
  - oogenesis
  - ovulation
  - fertilization
  - implantation
- Describe the clinical evaluation for female fertility including physical examination, laboratory investigation, hormone determinations, chromosome and genetic analysis and other technical investigations (hysterosalpingogram, clomid challenge, laparoscopy).
- Describe diagnostic categories in the standardized management of female infertility; give treatment options for each
- Describe all ART (assisted reproductive technology) protocols including IVF (in vitro fertilization), GIFT (gamete intrafallopian transfer), ZIFT (zygote intrafallopian transfer), ICSI (intracytoplasmic sperm injection), and identify the following for each protocol:
  - appropriate patient selection
  - ovulation induction
  - steps in the procedures
  - media required
  - advantages of the particular procedure
  - likelihood of success based on diagnosis
  - disadvantages of the procedure
- Describe successful fertilization of the oocyte and the subsequent steps leading to demonstration of the zygote.
• Describe assisted hatching; give the advantages and disadvantages of this procedure.
• Describe preimplantation genetic diagnosis (PDG), including indications.
• Outline protocols for preparation of oocyte donor and recipient for ART procedures.
• Outline protocols for preparation of gestational surrogate for ART procedures.
• Discuss experimental techniques including cytoplasmic transfer and nuclear transfer.
• Discuss multiple order gestation and fetal reduction.

Laboratory
• Using computer tutorial, assess oocyte maturity.
• Using photos and computer tutorial, give prognosis based on pronuclear pattern.
• Using computer tutorial, assess quality of human embryos and determine suitability for implantation and cryopreservation.
• Using photos and computer tutorials, determine fertilization and polyspermi.
• Using computer tutorial, give stages of blastocyst development.
• Culture and transfer mouse embryos in vitro.
• Set-up and perform quality assurance for the embryology laboratory.

Required Text: None

References:
Books:


VIDEOS:

Laboratory to Life; the Art and Science of Embryology; Produced by Serono Labs, Norwell, MA, 1994

PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
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Journals:
American Journal of Obstetrics & Gynecology
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Clinical Obstetrics & Gynecology
Contraception
Development
Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development
Grading: CSC 621
Quizzes 45%
Homeworks 15%
Lab Skills (Affective) 10%
Exam 30%

Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
• Students are expected to review materials received prior commencement of CSC 621.
• Homework assignments are to be completed by the student without assistance.
• Students are expected to complete all quizzes during the course and to complete the final exam at the end of course.
• Students must complete examinations during the scheduled period.
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading Assignments &amp; HmWks</th>
<th>Due Date for Homework</th>
<th>Quizzes, Exams</th>
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<td>Complete assignments</td>
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<td></td>
<td>Lecture: Diagnosis of female infertility</td>
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<td>Day 1 pm</td>
<td>Lecture: Fertility treatment options</td>
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<td>Day 2 am</td>
<td>Lecture: Ovulation induction</td>
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<td>Day 3</td>
<td>Quiz</td>
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<td>Day 2 pm</td>
<td>Lecture: ART overview &amp; review of ART procedures</td>
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<td>Day 3 am</td>
<td>Lecture: ART Media</td>
<td>TBA</td>
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<td>Lecture: Steps in IVF</td>
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<td>Day 3 pm</td>
<td>Lab: Thaw &amp; manipulate mouse gametes</td>
<td>TBA</td>
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<td>Lab: Set up cultures</td>
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<td>Day 4 am</td>
<td>Lecture: Compute tutorial on embryo development and staging</td>
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<td>Day 5</td>
<td>Quiz</td>
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<td></td>
<td>Lab: Embryo culture</td>
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<td>Day 4 pm</td>
<td>Embryo culture</td>
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<td>Lecture: Blastocyst culture</td>
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<td>Day 6</td>
<td>Final Lab Exam Written take-home</td>
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<td>Day 5 pm</td>
<td>Embryo culture to blast stage</td>
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<tr>
<td>Day 6 am</td>
<td>Lecture: Computer tutorial review</td>
<td>TBA</td>
<td>Day 7</td>
<td>Quiz</td>
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<tr>
<td>Day 6 pm</td>
<td>Lab: Blast culture</td>
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<td>Day 7 am</td>
<td>Lecture: ICSI</td>
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<td>Day 7 pm</td>
<td>Lab: ICSI</td>
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<td>Day 8 am</td>
<td>Lecture: Assisted Hatching</td>
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<td>Day 8 pm</td>
<td>Lab: Assisted hatching</td>
<td>TBA</td>
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<tr>
<td>Day 9 am</td>
<td>Lecture: Donor oocytes: Matching donor &amp; recipient cycles</td>
<td>TBA</td>
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<td>Day 9 pm</td>
<td>ART Lab tours</td>
<td>TBA</td>
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<td>ART Lab tours</td>
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<tr>
<td>Day 10 pm</td>
<td>ART Lab tours</td>
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<tr>
<td>Week 8</td>
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</table>
CSC 624 Gamete & Embryo Cryopreservation

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE: 201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER: (859) 323-1100 ext. 241
E-MAIL dbake0@uky.edu
ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER: (859) 323-5150
E-Mail kkcamp1@pop.uky.edu

Course Description: Gamete & Embryo Cryopreservation; 1 credit hours. Prerequisites: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, and CSC 621 or consent of instructor. Lecture: Principles of cryopreservation will be covered. Protocols for freezing spermatozoa, testicular tissue, oocytes, ovarian tissue and embryos at various stages of development will be introduced. Problems associated with freezing particular tissue types will be discussed. Laboratory: Students will cryopreserve human sperm and mouse embryos using both manual and automated methods. Students will thaw frozen gametes and embryos and assess using standard criteria. Legal, ethical and policy issues associated with cryopreservation of human reproductive tissue will be introduced, including potential for transmission of infectious disease and issues associated with the term of storage of embryos.

By the end of the course, the student will demonstrate that he/she will/can:

Lecture:
- Understand the principles of cryopreservation, including factors that affect survival of cryopreserved cells, effects of physical stress from freezing, and damage caused during the thawing process.
- Compare advantages and disadvantages of rapid and slow cooling methods.
- Describe vitrification and discuss advantages and drawbacks using this method.
- Determine warming rate for given tissue.
- Understand the action of cryoprotectants; be familiar with intracellular and extracellular cryoprotectants and determine when each should be used.
- Be familiar with manual and automated freezing methods for reproductive tissue.
- Outline appropriate record keeping for the cryo lab including patient consent, monitoring and terms of storage.
- Describe at least one acceptable protocol for freezing semen, testicular tissue, embryos, including blastocyst, oocytes and ovarian tissue.
- Describe the methods for freezing human oocytes; explain the problems associated with freezing metaphase oocytes and discuss options using prophase I oocytes.
- Diagram the steps for freezing and storage of human embryos using at least two different automated protocols.
- Describe methods for freezing human oocytes and discuss problems associated with cryopreserving oocytes.
- Describe protocol for freezing testicular tissue, including tissue preparation.
- Describe microbiological and genetic testing for sperm donors.
- Discuss problems associated with cryopreservation of human embryos.
- Use resources available, including the web, to identify case studies that demonstrate legal and ethical issues associated with cryopreservation of human reproductive tissue.
- Outline protocol for freezing reproductive tissue for patients undergoing radiation and/or chemotherapy; identify problems based on the type of malignancy and the age of the patient.
- Demonstrate an understanding of current and impending regulation for reproductive tissue banking.
Laboratory:
- Freeze, store, thaw and perform post-thaw assessment of human sperm using a manual method and two different automated methods.
- Prepare cryoprotectants and appropriate media for cryopreservation of reproductive tissue, including
  - Human sperm
  - Mouse oocytes
  - Mouse embryos
  - Mouse blastocysts.
- Outline preparation of cryoprotectants and appropriate media for cryopreservation of human oocytes, early stage embryos and blastocysts.
- Freeze, store, thaw and perform post-thaw assessment for the following reproductive tissue:
  - Mouse embryos
  - Mouse blastocysts
  - Human spermatozoa
  - Set-up and perform quality assurance for cryobanking.

Required Text: None

References:

Books:


PUBLIC BILLS AND LAWS

GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:

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*Biology of Reproduction*
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*Endocrinology Reviews*
*Fertility & Sterility*
*Gamete Research*
*Human Reproduction*
*International Journal of Developmental Biology*
*Journal of the American Medical Association*
*Journal of Andrology*
*Journal of Assisted Reproduction*
*Journal of Reproduction & Fertility*
*Journal of Assisted Reproduction & Genetics*
*Journal of Clinical Endocrinology & Metabolism*
*Journal of In Vitro Fertilization & Embryo Transfer*
*Journal of Microbiology*
*Journal of Reproduction and Fertility*
*Journal of Reproductive Medicine*
*Molecular Human Reproduction*
*Molecular Reproductive Development*
Grading: CSC 624
Quizzes  45%
Homeworks  15%
Lab Skills (Affective)  10%
Exam  30%

Grading Scale:
90-100%  = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
- Students are expected to review materials received prior commencement of CSC 624.
- Homework assignments are to be completed by the student without assistance.
- Students are expected to complete all quizzes during the course and to complete the final exam at the end of the course.
- Students must complete examinations during the scheduled period.
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading Assignment s &amp; Homeworks</th>
<th>Due Date for daily Homework assignment s</th>
<th>Quizzes, Exams</th>
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</thead>
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<tr>
<td>Pre-Day 1</td>
<td>Complete assignments</td>
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<td>Lecture: Cryoprotectants</td>
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<tr>
<td>Day 1 pm</td>
<td>Lecture: Overview of cryobiology for ART</td>
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<tr>
<td>Day 2 am</td>
<td>Lecture: Freezing Methods for Human Gametes</td>
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<td>Day 3</td>
<td>Quiz</td>
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<td>Lecture: Procedures</td>
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<tr>
<td>Day 2 pm</td>
<td>Lab: Manual Freezing &amp; thawing of sperm</td>
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<tr>
<td>Day 3 am</td>
<td>Lecture: Freezing Methods for Human Embryos</td>
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<td>Day 4</td>
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<tr>
<td></td>
<td>Lecture: Procedures</td>
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<tr>
<td>Day 3 pm</td>
<td>Lab: Automated procedures for gametes and embryos (2 methods)</td>
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<td>Day 4 am</td>
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<td>Day 5</td>
<td>Quiz</td>
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<td>Lecture: Thawing procedures</td>
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<td>Lab: Thawing gametes &amp; embryos</td>
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<tr>
<td>Day 4 pm</td>
<td>Lecture: Cryo lab management and record keeping</td>
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<tr>
<td>Day 5 am</td>
<td>Lecture: Overview of legal, ethical and policy issues in ART cryobiology</td>
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<tr>
<td>Day 5 pm</td>
<td>Review</td>
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<tr>
<td>Week 8</td>
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<td>Final comprehensive exam, following clinical practica</td>
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CSC 624 Gamete & Embryo Cryopreservation

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ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
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By the end of the course, the student will demonstrate that he/she will/can:

Lecture:
- Understand the principles of cryopreservation, including factors that affect survival of cryopreserved cells, effects of physical stress from freezing, and damage caused during the thawing process.
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- Describe vitrification and discuss advantages and drawbacks using this method.
- Determine warming rate for given tissue.
- Understand the action of cryoprotectants; be familiar with intracellular and extracellular cryoprotectants and determine when each should be used.
- Be familiar with manual and automated freezing methods for reproductive tissue.
- Outline appropriate record keeping for the cryo lab including patient consent, monitoring and terms of storage.
- Describe at least one acceptable protocol for freezing semen, testicular tissue, embryos, including blastocyst, oocytes and ovarian tissue.
- Describe the methods for freezing human oocytes; explain the problems associated with freezing metaphase oocytes and discuss options using prophase I oocytes.
- Diagram the steps for freezing and storage of human embryos using at least two different automated protocols.
- Describe methods for freezing human oocytes and discuss problems associated with cryopreserving oocytes.
- Describe protocol for freezing testicular tissue, including tissue preparation.
- Describe microbiological and genetic testing for sperm donors.
- Discuss problems associated with cryopreservation of human embryos.
- Use resources available, including the web, to identify case studies that demonstrate legal and ethical issues associated with cryopreservation of human reproductive tissue.
- Outline protocol for freezing reproductive tissue for patients undergoing radiation and/or chemotherapy; identify problems based on the type of malignancy and the age of the patient.
- Demonstrate an understanding of current and impending regulation for reproductive tissue banking.
Laboratory:

- Freeze, store, thaw and perform post-thaw assessment of human sperm using a manual method and two different automated methods.
- Prepare cryoprotectants and appropriate media for cryopreservation of reproductive tissue, including:
  - Human sperm
  - Mouse oocytes
  - Mouse embryos
  - Mouse blastocysts.
- Outline preparation of cryoprotectants and appropriate media for cryopreservation of human oocytes, early stage embryos and blastocysts.
- Freeze, store, thaw and perform post-thaw assessment for the following reproductive tissue:
  - Mouse embryos
  - Mouse blastocysts
  - Human spermatozoa
  - Set-up and perform quality assurance for cryobanking.

Required Text: None

References:

Books:


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:
American Journal of Obstetrics & Gynecology
American Journal of Reproductive Endocrinology
Andrologia
Biology of Reproduction
Clinical Obstetrics & Gynecology
Contraception
Development
Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development
Grading: CSC 624
Quizzes 45%
Homeworks 15%
Lab Skills (Affective) 10%
Exam 30%

Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
- Students are expected to review materials received prior commencement of CSC 624.
- Homework assignments are to be completed by the student without assistance.
- Students are expected to complete all quizzes during the course and to complete the final exam at the end of the course.
- Students must complete examinations during the scheduled period.
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading Assignments &amp; Homeworks</th>
<th>Due Date for daily Homework assignments</th>
<th>Quizzes, Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Day 1</td>
<td>Complete assignments</td>
<td>TBA</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Day 1 am</td>
<td>Lecture: Principles of cryobiology</td>
<td>TBA</td>
<td>Day 2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lecture: Cryoprotectants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 1 pm</td>
<td>Lecture: Overview of cryobiology for ART</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 2 am</td>
<td>Lecture: Freezing Methods for Human Gametes</td>
<td>TBA</td>
<td>Day 3</td>
<td>Quiz</td>
</tr>
<tr>
<td></td>
<td>Lecture: Procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 2 pm</td>
<td>Lab: Manual Freezing &amp; thawing of sperm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 3 am</td>
<td>Lecture: Freezing Methods for Human Embryos</td>
<td>TBA</td>
<td>Day 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lecture: Procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 3 pm</td>
<td>Lab: Automated procedures for gametes and embryos (2 methods)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 4 am</td>
<td>Lecture: Vitrification</td>
<td>TBA</td>
<td>Day 5</td>
<td>Quiz</td>
</tr>
<tr>
<td></td>
<td>Lecture: Thawing procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lab: Thawing gametes &amp; embryos</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 4 pm</td>
<td>Lecture: Cryo lab management and record keeping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 5 am</td>
<td>Lecture: Overview of legal, ethical and policy issues in ART cryobiology</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Day 5 pm</td>
<td>Review</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 8</td>
<td></td>
<td></td>
<td></td>
<td>Final comprehensive exam, following clinical practica</td>
</tr>
</tbody>
</table>
CSC 625  Policy, Management, Ethical & Legal Issues in Assisted Reproduction  
Campus modular

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)  
OFFICE: 201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003  
PHONE NUMBER: (859) 323-1100 ext. 241  
E-MAIL dbake0@uky.edu  
ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)  
PHONE NUMBER: (859) 323-5150  
E-Mail kkcampa1@pop.uky.edu

Course Description: Policy, Management, Ethical & Legal Issues in Assisted Reproduction; 2 credit hours.  
Prerequisites: CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 621, and CSC 624 or consent of instructor. Policy Current and anticipated regulation of assisted reproductive technology (ART) will be discussed. Laboratory management will be covered extensively and will include development of quality control and quality assurance programs for ART and andrology laboratories. Basic ethics principles will be introduced and ethical issues associated with the practice of ART will focus on controversial and research procedures, including embryonic stem cell research, human cloning, fetal reduction, nuclear and cytoplasmic transfer, embryo freezing and storage, gestational hosts and surrogacy. Legal cases and rulings will be used to demonstrate liabilities associated with the medical and laboratory practice or ART.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:
• Differentiate policy, law, legal, guideline, ethical
• Compile a complete list of federal and state laws applicable to the medical and laboratory practice of ART
• Compile a complete list of professional guidelines applicable to the medical and laboratory practice of ART.
• Compare U.S. laws and guidelines for the practice of ART with those from countries reporting internationally.
• Fully describe CLIA.
• Describe all federal laws that apply to the operation and certification of embryology/ART and andrology laboratories. List state and local laws that may apply.
• Demonstrate understanding and applicability for the Reproductive Laboratory Accreditation (RLAP) checklist for andrology and embryology laboratories.

Management:
• Incorporate materials learned in previous laboratory courses (CLS courses or CSC 528), and in earlier RLS courses to set up a general management program for both an andrology laboratory and an embryology/ART laboratory. Include:
  quality control program
  quality assurance program
  reporting results
  personnel training, continuing education and supervision
  budget preparation
  program evaluation (personnel evaluations, safety program)
  preparation for inspections and certification
• Use the Reproductive Laboratory Accreditation checklist to perform a ‘mock’ self-assessment.

Legal Issues:
• Use case studies to illustrate legal problems concerning:
  General ART procedures (IVF or GIFT)
  Use of donor gametes
Surrogacy
Gestational host
Cryopreservation of gametes and/or embryos (include terms of storage)

Ethical Issues:
ART procedures responsible for chimeras
Human cloning
Fetal reduction
Embryonic stem cell research
Providing ART services for HIV-positive patients
Limits to storage of human embryos
Sex selection
Preimplantation genetic diagnosis
Cytoplasmic and nuclear transfer

Required Text: None
References:
Books:


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:
1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:
American Journal of Obstetrics & Gynecology
American Journal of Reproductive Endocrinology
Andrologia
Biology of Reproduction
Clinical Obstetrics & Gynecology
Contraception
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Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development

Grading: CSC 625
33.3% Presentation (Policy, ethical or legal)
33.3% Report on Management of reproductive lab (to be selected from: ART, Cryo, andrology, reference)
33.3% Paper (Policy, ethical or legal: not used for presentation area)

Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E
Course Policies:

- Assignments are to be completed by the student without assistance.
  - Students are expected to correlate didactic information with clinical practice gained during laboratory tours, previous experience and/or the practica when writing papers and completing project assignments.
  - Students are expected to turn in all papers and reports the 8th week of the summer session.
<table>
<thead>
<tr>
<th>Day</th>
<th>Topic</th>
<th>Reading Assignments</th>
<th>Exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1 am</td>
<td>Lab Management – CLIA, CAP, JCAHO</td>
<td></td>
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<tr>
<td>Day 1 pm</td>
<td>Lab Management – Other Regulatory Agencies, Personnel, QA, QC, Coding &amp; Reimbursement, Regulations, safety</td>
<td></td>
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</tr>
<tr>
<td>Day 2 am</td>
<td>Policy- Definition; Government Agencies Overseeing clinical laboratories</td>
<td></td>
<td>TBA</td>
</tr>
<tr>
<td>Day 2 pm</td>
<td>Policy- Wyden Law, CDC case reporting, FDA Regulations</td>
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<tr>
<td>Day 3 am</td>
<td>Ethics – General Overview</td>
<td></td>
<td>TBA</td>
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<tr>
<td>Day 3 pm</td>
<td>Ethics – Reproductive ethics</td>
<td></td>
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<tr>
<td>Day 4 am</td>
<td>Reproductive Law</td>
<td></td>
<td>TBA</td>
</tr>
<tr>
<td>Day 4 pm</td>
<td>Legal - cases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 5 am</td>
<td>Student Presentations</td>
<td></td>
<td>TBA</td>
</tr>
<tr>
<td>Day 5 pm</td>
<td>Student Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 8</td>
<td></td>
<td></td>
<td>Paper and project due for final grade</td>
</tr>
</tbody>
</table>

- **Calendar**

The table above outlines the topics and assignments for each day of the course, including readings and potential exams. The final week includes a paper and project due for the final grade.
CSC 626          Andrology Clinical Practicum

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
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PHONE NUMBER: (859) 323-5150
E-Mail kkcamp1@pop.uky.edu

Course Description: Andrology Clinical Practicum. 1-2 credit hours. Prerequisites; CSC 528, CSC 615, CSC 616, CSC 617, CSC 618 or consent of instructor. Students must complete the checklist procedures while working under supervision. Andrology procedures will include semen analysis, sperm functions tests, microbiology, preparation of partner and donor semen for artificial insemination and cryopreservation of male gametes.

Objectives:
• (Refer to the checklist): Perform, under supervision, all procedures and tests covered in CLS 616, CLS 617 and CSC 618.
• Interpret test results and troubleshoot equipment problems.
• Perform routine laboratory quality control.
• Correlate test results with patient profile.
• Follow chain of custody for specimens as described by clinical practicum site.
• Report results to the physician.

As part of the clinical practicum in andrology, students must complete a written report focusing on one aspect of the laboratory. Topics will be selected or assigned from the areas of reproductive policy, laboratory management, ethical issues in andrology, and legal issues in andrology.

Required Text: None

References: Books:


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine Newsletter
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
4. Androlog
5. EmbryoMail
6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet

Journals:
American Journal of Obstetrics & Gynecology
American Journal of Reproductive Endocrinology
Andrologia
Biology of Reproduction
Clinical Obstetrics & Gynecology
Contraception
Development
Developmental Biology
Endocrinology Reviews
Fertility & Sterility
Gamete Research
Human Reproduction
International Journal of Developmental Biology
Journal of the American Medical Association
Journal of Andrology
Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development
Grading: CSC 626

Affective behavior (assessed using clinical supervisor guidelines) 10%
Checklist (See checklist under application for course changes) 90%

Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
  o Students are expected to abide by all rules and regulations agreed on by the clinical site and the University of Kentucky (see Affiliation Agreement when applicable).
  o Students should complete the checklist for every procedure available in the lab where he/she rotates.
  o Students will not receive a final grade until they have turned in:
    o the checklist, signed by the clinical supervisor
    o completed evaluation form for clinical site/clinical faculty.
CSC 627  ART Clinical Practicum

PROFESSOR: Doris J. Baker, Ph.D., HCLD(ABB), MT(ASCP), CLS(NCA)
OFFICE: 201B CAHP Building, 121 Washington Avenue, Lexington, Ky 40536-0003
PHONE NUMBER: (859) 323-1100 ext. 241
E-MAIL: dbake0@uky.edu
ED. COORDINATOR: Kim Campbell M.S., MT(ASCP) (phone: 323-5150)
PHONE NUMBER: (859) 323-5150
E-Mail: kkcamp1@pop.uky.edu

Course Description:

(n) ART Clinical Practicum. 1-3 credit hours. CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 621, CSC 624 or consent of instructor. Students must complete the checklist procedures while working under supervision. All ART procedures will be performed under supervision using appropriate models for practice. Procedures will include, in vitro fertilization and related procedures, micromanipulations including intracytoplasmic sperm injection, assisted hatching and preimplantation genetic diagnosis and cryopreservation of oocytes embryos.

Objectives:

By the end of the course the student will demonstrate that he/she will/can:

- (Refer to the checklist: Perform under supervision, all ART procedures and tests covered in CSC 621 and CSC 624.
- Interpret laboratory results and troubleshoot equipment problems.
- Perform routine laboratory quality control
- Follow chain of custody for specimens as described by clinical practicum site.
- Report results to physician

As part of the clinical practicum in andrology, students must complete a written report focusing on one aspect of the laboratory. Topics will be selected or assigned from the areas of reproductive policy, laboratory management, ethical issues in andrology, and legal issues in andrology.

Required Text: None

References:

Books:


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


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Journal of In Vitro Fertilization & Embryo Transfer
Journal of Microbiology
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular Reproductive Development

Grading: CSC 627

Affective behavior (assessed using clinical supervisor guidelines) 10%
Checklist (See checklist under application for course change) 90%
Grading Scale:
90-100% = A
80-89% = B
70-79% = C
below 70% = E

Course Policies:
- Students are expected to abide by all rules and regulations agreed on by the clinical site and the University of Kentucky (see Affiliation Agreement when applicable).
- Students should complete the checklist for every procedure available in the lab where he/she rotates.
- Students will not receive a final grade until they have turned in:
  - the checklist, signed by the clinical supervisor
  - completed evaluation form for clinical site/clinical faculty.
Course Description: Prerequisites; CSC 528, CSC 615, CSC 616, CSC 617, CSC 618, CSC 621, CSC 624, CSC 625 or consent of instructor. Students in the RLS seminar will critique research papers in the field, and will develop and present PowerPoint presentations on subjects covering andrology, ART, cryopreservation of human reproductive tissue, management issues in the reproductive laboratory, and policy, ethical and legal issues in ART.

Objectives: By the end of the course, the student will demonstrate that he/she will/can:

- Search the scientific literature using traditional resources (library) and web-based resources.
- Critique research papers in the field.
- Develop and present a PowerPoint presentation on subjects in the field.
- Critique peer presentations.

Required Text: None

Reference Texts and References:

Books:


VIDEOS:

Sperm Prep, Produced by Fertility Technologies, Inc., Natick, Ma.

Laboratory to Life; the Art and Science of Embryology; Produced by Serono Labs, Norwell, MA, 1994.
CD-ROMS


PUBLIC BILLS AND LAWS


GUIDELINES, WORKSHOP SUMMARIES, ACCREDITATION PROGRAMS


Guidelines and newsletters as applicable:

1. American Society for Reproductive Medicine . NEWS
2. The American Fertility Society Guidelines for Practice
3. ASRM Net News
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6. ARTlog
7. Kaiser Newsletter
8. Alpha International
9. FertiNet
**Journals:**
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Journal of Assisted Reproduction
Journal of Reproduction & Fertility
Journal of Assisted Reproduction & Genetics
Journal of Clinical Endocrinology & Metabolism
Journal of In Vitro Fertilization & Embryo Transfer

**Journal of Microbiology**
Journal of Reproduction and Fertility
Journal of Reproductive Medicine
Molecular Human Reproduction
Molecular and Reproductive Biology

**Course Policies:**
- Attendance and class participation are mandatory.

**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class participation</td>
<td>10%</td>
</tr>
<tr>
<td>Critique of research paper</td>
<td>30%</td>
</tr>
<tr>
<td>PowerPoint presentation</td>
<td>50%</td>
</tr>
<tr>
<td>Critique of class presentations</td>
<td>10%</td>
</tr>
<tr>
<td>Day</td>
<td>Topic</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Pre-day 1</td>
<td>Receive assignments</td>
</tr>
<tr>
<td>Day 1 am</td>
<td>Lecture: Searches; assign research paper for critique</td>
</tr>
<tr>
<td>Day 1 pm</td>
<td>Students find/read paper</td>
</tr>
<tr>
<td>Day 2 am</td>
<td>Students critique research paper</td>
</tr>
<tr>
<td>Day 2 pm</td>
<td></td>
</tr>
<tr>
<td>Day 3 am</td>
<td>Lecture and demos: Preparing PowerPoint presentations</td>
</tr>
<tr>
<td>Day 3 pm</td>
<td></td>
</tr>
<tr>
<td>Day 4 am</td>
<td>Student PowerPoint presentations</td>
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<tr>
<td>Day 4 pm</td>
<td></td>
</tr>
<tr>
<td>Day 5 am</td>
<td>Critique of student presentations</td>
</tr>
<tr>
<td>Day 5 pm</td>
<td></td>
</tr>
</tbody>
</table>