Agendum
Oakland University
Board of Trustees Formal Session
February 6, 2023

MASTER OF SCIENCE IN CLINICAL AND DIAGNOSTIC SCIENCES
A Recommendation

1. **Division and Department:** Academic Affairs, School of Health Sciences, Department of Clinical and Diagnostic Sciences.

2. **Introduction:** Oakland University proposes a new non-thesis degree graduate program in Clinical and Diagnostic Sciences within the Department of Clinical and Diagnostic Sciences (CDS), in the School of Health Sciences (SHS).

MS in Clinical and Diagnostic Science (Non-Thesis)
This degree is intended for clinical and diagnostic sciences students to gain experience in clinical laboratory research. Students must complete a set of core courses in the CDS program which center on research methodology and implementation as they apply to problems in the clinical laboratory. The Capstone project provides students a unique opportunity to either conduct a research-based or problem-based project. Students will work with a faculty mentor who will help them select the capstone project that is most relevant to their career goals. Students who choose to develop a research project relevant to clinical diagnostic sciences will work with their major professor or clinical affiliate (for those currently working in a clinical laboratory) to master the techniques required. Students who do not wish to complete a research-based project can elect to complete a problems-based project, working with their mentor to develop a project or proposal on a topic of their choosing related to clinical and diagnostic science.

MS in Clinical and Diagnostic Sciences with Professional Development Concentration (Non-thesis)
Students who already have MLS certification or similar healthcare-related certification (HTL, Rad-Tech, etc.) seeking to enter management or administrative positions in their workplace may elect the MS in Clinical and Diagnostic Sciences with Professional Development concentration. In addition to core CDS courses, this concentration requires courses in diverse disciplines such as management, organizational behavior, and public administration. A diverse selection of electives allows the student to take additional courses in education theory, leadership, academic affairs, and higher education. Students in this concentration will select additional electives by working with their faculty advisor based on their career goals. This concentration may be taken primarily online.

MS in Clinical and Diagnostic Sciences Combined Bachelor's/Master's Program
Undergraduate students currently enrolled in the OU BS in Clinical Diagnostic Sciences with the specialization in Medical Laboratory Science (MLS) program and have a minimum overall undergraduate GPA of 3.2 may formally apply to the Combined Bachelor's/Master's Program in Clinical and Diagnostics Sciences degree program and be offered deferred admission to the graduate program may begin enrollment in graduate

courses during the first semester of the senior year. The 12-credits of graduate courses applied to the bachelor's degree may be counted also for graduate credit in a combined program. Courses eligible to be double counted must be at the 5000 level and must be passed with at least a B in each course. Courses in the final year are designed to enhance their educational goals and objectives, while simultaneously reviewing current literature in their field of study and completing a discipline-specific project in their capstone course. OU undergraduate students admitted to the BS in Clinical and Diagnostic Sciences with a specialization in Medical Laboratory Science (MLS) are eligible to apply to the MS in Clinical and Diagnostic Sciences Combined Bachelor's/Master's Program. Undergraduate students in MLS may apply for this option by contacting the MLS Program Director. Upon acceptance students complete their graduate-level cross-listed elective courses in their senior year followed by their clinical rotation post-graduate and complete one additional year of coursework at the graduate level.

The School of Health Sciences' mission is to provide an exceptional environment of collaborative, academic and clinical learning that helps transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices. The MS in CDS accomplishes this mission by preparing students to further their laboratory careers and preparing them for leadership roles in their chosen profession.

3. **Previous Board Action:** None.

4. **Budget Implications:** The primary source of funding new resources will be graduate tuition. Therefore, based on our projected enrollment, the program will generate increasing net revenues both from initial graduate students as well as undergraduates who elect the 4+1 program option (net revenues for these students realized in year two). The program will begin recruiting in the spring of 2023 with an anticipated start date of fall 2023 upon Board of Trustees approval. As the students in the 4+1 program matriculate into the graduate portion of the degree (year two onward) tuition revenues reach a steady state, with gradual increases supporting the hiring of one additional faculty by year five. Salary expenses include one additional full-time faculty by year five, and graduate assistants. Operating expenses include supplies and services, equipment, maintenance, recruitment and library. The MS-CDS proforma budget is included as Attachment B.

5. **Educational Implications:** The MS in CDS degree will be a unique program to Oakland University that differs from any current offerings in the University. The Department of Clinical and Diagnostic Sciences is the home of many of the core diagnostic fields of science, study and practice, making the MS a strong addition to the current programs. CDS graduate students will be required to complete a core set of CDS courses outlined in the proposal, but then have the opportunity to develop their professional goals through the selection of their electives.

The purpose of this degree is to encourage healthcare professionals to obtain additional training and develop critical thinking skills in order to advance in their profession. Students in the MS in Clinical and Diagnostic Sciences program will learn additional skills related to their current occupation and may elect several possible tracks to accomplish their educational goals.

Recent population estimates from the U.S. Census Bureau show the population of Southeast Michigan expanding by over 17,700, from 994,960 in 2013 to 1,012,660 in 2019. This represents a growth rate of 1.8 percent, compared to a statewide rate of 0.7 percent. The need for healthcare workers in the region is expected to grow by 17% by 2026, with 31% of those requiring a bachelor's degree or higher.

Diagnostic tests are the basis for 80% of the decisions regarding patient care. As advanced molecular testing and imaging become more prominent, it is crucial to have a workforce composed of graduate level medical professionals to meet the demand for these types of advanced tests. A master's degree helps laboratory and diagnostic scientists become leaders in a field that is highly valued and continues to grow. As the instruments and technologies used to detect disease and monitor treatment become more sophisticated, graduate degree trained healthcare professionals are spending more time interacting with clinicians to help them figure out which tests to order and what the results mean for their patients.

6. **Personnel Implications:** The MS in CDS faculty will include full- and part-time faculty with expertise in clinical and diagnostic sciences. The program plans to matriculate a maximum of 40 students, which will be done in a stepwise fashion, beginning with five students in the first year, 18 in the second, and then increasing by three to five students in subsequent years. The jump in students in the second year will be driven by students who enter as undergraduates in the first year of the 4+1 program. Faculty to student ratio with three full time graduate faculty will increase from 5:3 up to 30:3 within the first four years, at which time a fourth graduate faculty member will be added. The attached proforma has budgeted for the faculty line to include a Graduate Coordinator and three additional full-time faculty (the final to be added in year five). The program proforma has also budgeted for four graduate assistants by year five.

7. **University Reviews/Approvals:** This proposal for the Master of Science in Clinical and Diagnostic Sciences degree program was reviewed and approved by the School of Health Sciences Assembly, the OU Graduate School Grad Council, the OU Senate, and the Executive Vice President for Academic Affairs and Provost.

8. **Recommendation:**

WHEREAS, the Master of Science in Clinical and Diagnostic Sciences degree program is consistent with the objectives contained in Oakland University's Institutional Priorities; and

WHEREAS, the Master of Science in Clinical and Diagnostic Sciences degree program will build on the academic and research strengths in the Department of Clinical and Diagnostic Sciences and provide new educational and community engagement opportunities in the field of laboratory science; now, therefore, be it

RESOLVED, that the Board of Trustees authorizes the School of Health Sciences to offer a Master of Science in Clinical and Diagnostic Sciences degree program; and, be it further

RESOLVED, that the Executive Vice President for Academic Affairs and Provost will complete annual reviews of the Master of Science in Clinical and Diagnostic Sciences degree program to evaluate academic quality and fiscal viability to determine whether the program should continue.

9. Attachments:

A. Proposal for the Master of Science in Clinical and Diagnostic Sciences degree program.
B. Proforma budget for the Master of Science in Clinical and Diagnostic Sciences degree program.

Submitted to the President
on 1/31, 2023 by

Britt Rios-Ellis, M.S., Ph.D.
Executive Vice President for
Academic Affairs and Provost

Recommended on 2/1, 2023
to the Board for approval by

Ora Hirsch Pescovitz, M.D.
President

Reviewed by

Joshua D. Merchant, Ph.D.
Chief of Staff and
Secretary to the Board of Trustees

ATTACHMENT A

Oakland University

Graduate Council

Cover Memo

REQUESTED Effective Term/Year Fall 2022
Proposed Title of the Graduate Degree program MS in Clinical and Diagnostic Sciences
Department Clinical and Diagnostic Sciences
School/College School of Health Sciences
The delivery method for the Graduate Degree program is ☐ **face to face (100%)** ☐ **fully online (100%)** ☒**primarily online (75%)**

I, Dean (enter last name) certify that the (insert title of proposed degree program) has been reviewed by the appropriate school/college and department committees and that implementation of the proposed degree program is recommended.

Dean of College/School (signature) | October 18, 2021 Date | Kevin Ball, PhD Dean of College/School (print)

DECISION OF GRADUATE COUNCIL
Approved

April 13, 2022
Date

Oakland University
Graduate Council

Title Page

Degree Program Title: Clinical and Diagnostic Sciences

Degree: Master of Science

Name of Degree Program Coordinator: Dale Telgenhoff, PhD, MBA, C, HTL

Requested Implementation Term: Fall 2022

School or College Governance

Name of Department: Clinical and Diagnostic Sciences

Date Submitted:3/17/21 Date Approved: 3/26/21

Graduate Committee on Instruction

Date Submitted:4/1/21 Date Approved: 5/4/21

Dean School or College: Dean Kevin Ball, PhD

Date Submitted: 9/15/21 Date Approved: 9/15/21

University Governance

Graduate Council

Date Submitted: 10/1/21 Date Approved: 4/13/22

Senate

Date Submitted Date Approved

Board of Trustees

Date Submitted Date Approved

Presidents Council

Date Submitted Date Approved

Abstract

This proposal requests approval for a non-thesis practice-focused Master of Science in Clinical and Diagnostic Sciences degree. This degree will be offered through the Department of Clinical and Diagnostic Sciences (CDS). The purpose of this degree is to encourage healthcare professionals to obtain additional training and develop critical thinking skills in order to advance in their profession. Students in the MS in Clinical and Diagnostic Sciences program will learn additional skills related to their current occupation and may elect several possible tracks to accomplish their educational goals.

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The School of Health Sciences mission is to provide an exceptional environment of collaborative, academic and clinical learning that helps transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices. The M.S. in CDS accomplishes this mission by preparing students to further their laboratory careers and preparing them for leadership roles in their chosen profession.

Oakland University

Graduate Council

Table of Contents

I. Rationale

a. How the program will help promote the role and mission of the university

This proposal requests approval for a non-thesis practice-focused MS degree in Clinical and Diagnostic Sciences that would launch in Fall of 2022.

Overarching goals of this program are to provide a highly skilled cadre of leaders in the clinical laboratory and diagnostic sciences, with the ability to expand their horizons in the ever-changing healthcare profession. The new program aligns with the vision of Oakland University as a degree to unlock the potential of individuals and leave a lasting impact on our community.

b. Need for the program –unique or distinctive aspects

Recent population estimates from the U.S. Census Bureau show the population of Southeast Michigan expanding by over 17,700, from 994,960 in 2013 to 1,012,660 in 2019. This represents a growth rate of 1.8 percent, compared to a statewide rate of 0.7 percent.[1] The need for healthcare workers in the region is expected to grow by 17% by 2026, with 31% of those requiring a bachelor's degree or higher.

Diagnostic tests are the basis for 80% of the decisions regarding patient care. As advanced molecular testing and imaging become more prominent, it is crucial to have a workforce composed of graduate level medical professionals to meet the demand for these types of advanced tests. A master's degree helps laboratory and diagnostic scientists become leaders in a field that is highly valued and continues to grow. As the instruments and technologies used to detect disease and monitor treatment become more sophisticated, graduate degree trained healthcare professionals are spending more time interacting with clinicians to help them figure out which tests to order and what the results mean for their patients.

Benefits of pursuing MS in CDS include:

1. Selection of courses based on student interest and career goals
2. Gaining workforce ready, well-rounded and marketable technical skills geared for future employment.
3. Exposure to regulatory, fiscal and management aspects of healthcare
4. Gain knowledge and skills required to enter leadership and supervisory roles in current position

[1] 2020 ANNUAL PLANNING INFORMATION AND WORKFORCE ANALYSIS REPORTS, Southeast Michigan

c. List the goals and objectives of the program

Program Specific Goals

1. Graduates will display a mastery of clinical and diagnostic sciences.
2. Graduates will critically analyze data by analyzing, reviewing, and interpreting data that are relevant to the demands of an advanced professional in clinical and diagnostic sciences, as appropriate, for each discipline.
3. Graduates will apply knowledge of evidence-based practice to critically evaluate clinical case examples.
4. Graduates will participate in research projects or independent study designed to expand knowledge within the discipline.
5. Promote diversity and inclusion in research, teaching, public service, and training across campus and in neighboring communities.

Outcomes for the MS-CDS include the expectation that students will be able to:

1. Apply the advanced knowledge and technical skills needed to serve as active contributors and/or leaders in the clinical and diagnostic science profession.
2. Critically review, appraise and synthesize biomedical sciences literature.
3. Identify and systematically investigate research questions pertinent to healthcare practice.
4. Synthesize new concepts, models and theories through the appropriate application of empirical knowledge and the scientific method to help resolve health sciences issues or problems.
5. Apply current knowledge to evaluate or design more effective ways to deliver clinical laboratory and health-related services.
6. Use a variety of information technologies to address both theoretical and practical problems, enhance communication, and disseminate knowledge to applicable audiences and interest groups.
7. Demonstrate proficiency in both oral and written communication, using both scholarly and technical formats.
8. Work collaboratively with others to advance the scientific bases of knowledge in laboratory science via ongoing scholarship.
9. Integrate basic principles of ethics and cultural sensitivity within all interpersonal and professional activities.

The proposed new program is compatible with the academic priorities of the School of Health Sciences by supporting the initiative of creating an exceptional environment of collaborative, academic and clinical learning that helps transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices.

d. Comparison to other similar programs –State/Regional/National

The proposed program does not overlap with any other graduate program at Oakland University. The clinical and diagnostic aspect of the degree plan make it a unique program for the preparation of tomorrow's CDS leaders. Of the three CDS programs in the state (Andrews University, Northern Michigan University, and Michigan State University) only one is completely online (Michigan State University). Based on growth and enrollment of similar programs within the state of Michigan we anticipate approximately 20-25 students enrolled in the first year across all of the tracks, with a projected growth to 40 students within the first 5 years. Much of the initial growth is expected to be driven by the Combined Bachelor's/Master's Program MLS program initially. Northern Michigan University began their CLS master's with 8 students and grew to 25 students by year three. Their average number of graduate students over the past five years is 24. NMU's program is also specific for molecular genetics, which is narrower in spectrum compared to our program. Michigan State University's CLS master's program has a five-year annual average enrollment of 28.

In the years of 2015-2019 Oakland University has had an average graduate student population of 3465 students. Of those, 2240 were master's degree students. 4.66% of those students were in master's programs in the School of Health Sciences. The addition of this program is projected to increase the School of Health Sciences master's students by 25%, increasing the total number of students in master's programs in the School of Health Sciences to 5.78% of Oakland University's master's degree seeking students.

II. Academic Unit

a. How the goals of the unit are served by the program

The goals of the Clinical and Diagnostic Sciences Department are as follows:

1. Graduates demonstrate cognition in their core curricula.
2. Graduates provide accurate results by performing, analyzing, reviewing and interpreting data that are relevant to the demands of an entry-level professional, as appropriate, for each discipline.
3. Graduates acquire placement in a clinical internship or a post-baccalaureate professional program.
4. Graduates will apply knowledge of evidence-based practice to critically evaluate clinical case examples.

These goals are also important in the design and development of the new CDS graduate program. Graduates of the CDS M.S. program will exhibit advanced knowledge in their field of specialty, gain experience in performing, analyzing, reviewing, and interpreting data that are relevant to the demands of an advanced level professional, and utilize recent studies and cutting-edge research to develop novel assays and evaluate clinical case examples.

b. How existing staff will support the proposed program

Within the CDS a core faculty exist, however there are currently three PhD trained faculty. As graduate courses require a PhD prepared faculty as instructor of record, and students are required to complete a research or capstone project, there is a need for PhD prepared faculty. A fourth PhD faculty will be required in the fourth year of the initial five-year period. This faculty will have primary teaching and research responsibility for delivery of this program (Table 1).

c. Faculty qualifications - current scholarly activity of the faculty in the proposed program
See Table 1, and Appendix A

Table 1 – Faculty Affiliated with the Graduate Program

Name	Degree	Rank	Specialty
Sumit Dinda	PhD	Professor and Chair	Biochemistry, Endocrinology, Cancer Research
Dale Telgenhoff	PhD, MBA	Associate Professor	Clinical Chemistry, Biochemistry, Medical Genetics, Wound Healing
Shicheng Chen	PhD, MLS	Assistant Professor	Microbiology Molecular Diagnosis Microbial Pathogenesis
TBD - 2024	PhD, MLS	Assistant Professor	

New faculty in the CDS Graduate Program will be expected to develop new graduate level offerings, consistent with their areas of research and expertise.

Graduate Coordinator

The CDS department chair will appoint a graduate coordinator for the Clinical and Diagnostic Sciences Master's Program from among the department faculty. The Graduate Coordinator will receive one course release per year. The term of service for the graduate coordinator is three years, with no limit on the number of consecutive terms that may be served. The graduate coordinator serves as the program representative and point person and is responsible for the following:

1. Program development
2. Program recruiting
3. Corresponding with prospective students
4. Maintaining program records
5. Chairing Program Committee meetings
6. Setting review criteria for admitting students to the program, in consultation with the admissions committee (composed of two additional CDS faculty)
7. Final approval of degree
8. Communicating dismissal of students who fail to make satisfactory progress (as determined by OU policy on satisfactory progress and appeals)

9. Ongoing program assessment

d. Current Resources and explain how will the new program impact existing resources

Current resources within the department and School of Health Sciences are sufficient to meet the needs of the program. This includes teaching rooms, teaching and research laboratories, office space, graduate student office and research space, equipment, and supplies. As the program grows in student number, we expect to hire additional faculty (2025) and conduct a reassessment of existing resources as a component of our program assessment.

New Resources Needed for the Program

1. Additional Faculty (2024) – See section II for description
2. Graduate Coordinator – 1 course release for graduate faculty member
3. Graduate Assistantships – 2 in year three, one additional added in years four and five (4 total) – teaching undergraduate laboratory sections.

Source of New Resources

1. Budgeting for additional faculty and laboratory manager in Proforma Budget (see **Appendix E**)
2. 5-year Budget and Revenue from Program – See **Appendix E**

Library Assessment Report – See **Appendix F**

Classroom, Laboratory, and Space Needs

As the curriculum is primarily online the existing classroom space in HHB is sufficient to meet the needs of the new degree offering. Research space for graduate students in the research track will be provided by graduate faculty in current research laboratories located in HHB.

Equipment Need

At this time there is no additional equipment required by the program. Any additional equipment requests will be routed through the Graduate Coordinator, Department Chair, Assistant Dean, and Dean of the School of Health Sciences. Research equipment required by faculty will be a component of new faculty hiring packages or written as an equipment grant following identification of funding source.

III. Program Plan

A. Admission Requirements

The general admission requirements listed below represent the minimum requirements for admission to graduate study.

- Online Application for Admission to Oakland University Graduate School.
- Official transcripts providing evidence of an earned baccalaureate degree from an accredited U.S. institution, OR a degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government-recognized standing.
- Official transcripts for all post-secondary educational institutions from which the applicant earned a degree (beginning with the first baccalaureate) and for all enrollment in graduate-level coursework beyond the bachelor's degree.
- International university transcripts must be evaluated by a professional credential evaluation service. Oakland University will only accept transcript evaluations completed by a NACES (National Association of Credential Evaluation service) member organization. Many applicants use World Educational Services (WES) or Educational Credential Evaluators (ECE). NACES membership can be confirmed by visiting www.naces.org/members.htm.
- Two official and original Recommendation for Graduate Admission forms.
- Proof of English language proficiency
- International supplemental application and supporting documentation must be submitted before international applicants can be issued the Certification of Eligibility (I-20). This certificate is required to apply for a student visa from the U.S. embassy or consulate.

Prerequisite Courses

Students in the traditional MS program must have a bachelor's degree from a regionally accredited university, and the following prerequisite courses (or equivalent):

1. Biology: Biology I, Physiology, Microbiology
2. Math: College Algebra

The minimum grade of B (3.0) must be earned in each prerequisite course.
All prerequisite courses must be completed at the time of application.

Academic term(s) and deadlines for applications for admission

Applications can be reviewed and accepted for fall, winter, and summer semesters. Application deadlines are July 15 (fall semester), November 15 (winter semester), and March 1 (summer semester)

Graduate admission documents

All graduate admission documentation becomes part of the official admission file and can neither be returned to the applicant nor duplicated for any purpose.

Application

Oakland University accepts an online Application for Admission to Oakland University Graduate School via www.oakland.edu/grad. To make the online application process convenient, the applicant creates a PIN and password so information can be entered over several sessions. Online information is stored and transmitted through a secured server. Once the online application is submitted, it is available for initial processing by Graduate Admissions.

Applicants who have been previously admitted and have not enrolled for two years must submit a Petition to Readmit to Graduate Program.

Baccalaureate degree

Applicants must have earned a baccalaureate degree from an accredited U.S. institution OR a degree equivalent to a four-year U.S. baccalaureate degree from a college or university of government recognized standing.

Prospective students may apply for admission to graduate study at Oakland University during their final year of undergraduate study but must furnish proof of the baccalaureate degree by submitting the official transcript, with the degree posted, by a deadline no later than 45 days from the first day of class for the initial term of enrollment.

The date the baccalaureate degree was conferred must precede the date of enrollment in the graduate degree program.

Official transcripts

According to the guidelines set by the American Association of College Registrars and Admissions Officers (AACRAO), an official college transcript is one that has been received in a sealed envelope directly from the issuing college or university. It must bear the college seal, current date and an appropriate signature. Additionally, transcripts providing certification of the degree earned must include the degree and the date the degree was awarded. Transcripts received that do not meet these requirements are not considered official. All transcripts become the property of Oakland University and will not be returned to an applicant or sent to another institution.

Letters of recommendation

The graduate program in Clinical and Diagnostic Sciences requires an applicant to submit a minimum of two Recommendation for Graduate Admission forms. Unless the applicant has been out of school for more than five years, at least one of the recommenders should be a faculty member who is able to judge the applicant's preparation and ability to undertake graduate study.

Substitutions for a faculty recommender may include work supervisors or approved others who can comment on the applicant's academic potential for graduate work.

All recommendations must be submitted on the recommendation forms provided on the Graduate Admissions Web site. The recommendation forms should be sent directly by the writer to the Graduate Admissions office.

The Recommendation for Graduate Admission forms become part of the student's official admission file. The Family Education Rights and Privacy Act of 1974 provides a student access to his/her educational record; however, the student retains the right to waive access to specific documents in his/her record. Students admitted to graduate study at Oakland University will be permitted access to the recommendations unless the student voluntarily waived this right as an applicant. Students who waived this right will not be permitted access to the recommendations.

International supplemental application

In addition to the Application for Admission to Oakland University Graduate School, international applicants must submit an International Student Supplemental Application. The international supplemental application is available at www.oakland.edu/grad.

Graduate admission process overview

Applicants seeking graduate admission with full standing to a degree or graduate certificate program must submit all required documentation by published deadlines to ensure proper processing and evaluation by the school or department and Graduate Admissions for the selected semester. ~~Even though an applicant may meet the general requirements for admission to graduate study, the CDS program reserves the right to recommend a denial or admission with limited standing based upon the evaluation of documentation supplied by the applicant, as well as the standing of the applicant relative to others who have applied to the specific graduate program.~~ Graduate students are permitted to matriculate into only one graduate degree program at a time.

Offer of admission

Formal admission to a graduate program at Oakland University is offered by Oakland University Graduate School. The offer of graduate admission is extended to the applicant for a specified semester. An admitted student who wishes to change the semester of entry must request to update their admission to graduate school. Oakland University Graduate School will permit an admitted applicant to update within five terms of the original admission term; thereafter, a new application will be required. Graduate students are admitted to either full or limited standing as described below.

Recruitment

The graduate coordinator will be responsible for student recruitment with help from the SHS recruiting liaison, undergraduate advisors, and the MLS Program Director. Components of the recruitment process include communication and financial support. Communications involves direct outreach with potential graduate students, as well as online interaction. Current CDS students and recent graduates will be contacted by Oakland email in order to advertise the new program. Student inquiries will be followed by a phone and/or face-to-face meeting. Additionally, the graduate coordinator will attend university open houses for potential students, involve faculty, students and alumni in recruiting, reach out to professional networks to identify potential students, visit undergraduate feeder institutions, present to OU undergraduate students and honors college students, reach out to employers that support employees who are in a degree program, ask advisory board members to get engaged in recruitment, and work with communications and marketing to develop an online presence.

B. Degree Requirements

Required minimum grade of B (3.0) is required for each prerequisite course.
All prerequisite courses must be completed at the time of application.
Students must complete all course requirements for graduation in accordance with the Graduate School policy. Student requirements for the MS in Clinical Diagnostic Science:

1. Must complete all required courses
2. Must complete all program requirements
3. Must be in good academic standing (overall graduate GPA of 3.0 or above)
4. Credits do not exceed the time limit for completing the degree
5. No individual course grade below C may be applied toward a graduate program.
6. Regardless of the concentration, students must take a minimum of 50% of their courses at the graduate level (not cross-listed)

Oakland University

Graduate Council

MS IN CLINICAL AND DIAGNOSTIC SCIENCES DEGREE

Traditional Program

		credits	delivery	new
PREREQUISTES				-
	BIOLOGY I			-
	PHYSIOLOGY			-
	MICROBIOLOGY			-
	COLLEGE ALGEBRA			-
				-
CORE	**8 CREDITS**			
CDS 6300	Molecular and Cellular Pathology	3	100	new
PH 5410	Statistical Methods in Public Health	3	75	
PH 5411	Statistical Methods in Public Health Lab	1		
CDS 5200	Literature Review	1	100	new
ELECTIVES*	**19 CREDITS**	**19**		
CDS 4000/5000	Medical Genetics (4)			
CDS 4020/5020	Molecular Diagnostics (3)		0	new
CDS 4050/5050	Pharmacology (3)		75	
CDS 4240/5240	Immunohematology (3)		0	new
CDS 4250/5250	Medical Biochemistry (4)			
CDS 4350/5350	Clinical Parasitology, Mycology, Virology (3)		0	new
CDS 4400/5400	Clinical Correlations (3)		0	new
CDS 5900	Special Topics (1-4cr) – maximum 4crs	1	100	
CDS 6200	Laboratory Management (3)	3	100	new
BIO 4622/5622	Endocrinology (4)		100	
EXS 4600/5600	Health and Disease (2)		100	
EXS 5000	Introduction to Research (4)			
CAPSTONE				
CDS 6000	CDS Capstone Research Project - OR- Problem Based Project	**3**	100	new
	Degree credit requirements	**30**		

***50% or more of classes must be at the graduate level (no cross-listed classes)**

Oakland University

Graduate Council

MS IN CLINICAL AND DIAGNOSTIC SCIENCES
DEGREE
Concentration in Professional Development

PREREQUISITE

The Professional Development concentration for students with a previous MLS certification or certification in a related field consists of courses designed to assist the healthcare professional in progressing into management or education in their current profession.

		credits	delivery	new
CORE	**8 CREDITS**			
CDS 6300	Molecular and Cellular Pathology	3	100	new
PH 5410	Statistical Methods in Public Health	3	75	
PH 5411	Statistical Methods in Public Health Lab	1		
CDS 5200	Literature Review	1	100	new
CONCENTRATION*	**13 CREDITS – Professional Development**			
CDS 6200	Laboratory Management	3	100	
PA 5100	Foundations of Public Administration	3	100	
ORG 5300	Organizational Behavior	3	100	
PH 5700	Health Policy and Management	4	100	
ELECTIVES	**6 CREDITS**	9		
EXS 5600	Health and Disease (2)			
EL 6300	Theories and Techniques of Leadership (4)			
PA 5500	Nonprofit Organization and Management (4)			
PH 5000	Foundations Health Behavior and Health Edu (4)			
PH 5650	Social Determinants of Health (4)			
PH 5500	Introduction to Epidemiology (4)			
HRD 6801	Introduction and Theories of Lean Leadership I (4)			
HRD 6950	Lean Leadership Internship I (2)			
CAPSTONE				
CDS 6000	CDS Capstone Research Project – OR- Problem Based Project	3	100	new
	Degree credit requirements	**30**		

***50% or more of classes must be at the graduate level**

(no cross-listed classes)

MS IN CLINICAL AND DIAGNOSTIC SCIENCES DEGREE Combined Bachelor's/Master's Program Traditional Program				
		credits	delivery	new
CORE	**8 CREDITS**			
CDS 6300	Molecular and Cellular Pathology	3	100	new
PH 5410	Statistical Methods in Public Health	3	75	
PH 5411	Statistical Methods in Public Health Lab	1		
CDS 5200	Literature Review	1	100	new
				-
UG/GR COURSES	**12 CREDITS**			
CDS 4240/5240	Immunohematology	3	0	new
CDS 4020/5020	Molecular Diagnostics	3	0	new
CDS 4350/5350	Clinical Parasitology, Mycology, Virology	3	0	new
CDS 4400/5400	Clinical Correlations	3	0	new
ELECTIVES*	**7 CREDITS**	**7**		
CDS 4000/5000	Medical Genetics (4)			
CDS 4050/5050	Pharmacology (3)		75	
CDS 4250/5250	Medical Biochemistry (4)			
CDS 5900	Special Topics (1-4cr) – maximim 4	1	100	
CDS 6200	Laboratory Management	3	100	
BIO 4622/5622	Endocrinology (4)		100	
EXS 4600/5600	Health and Disease (2)		100	
EXS 5000	Introduction to Research (4)			
CAPSTONE				
CDS 6000	CDS Capstone Research Project - OR- Problem Based Project	3	100	new
	Degree credit requirements	**30**		

***50% or more of classes must be at the graduate level (no cross-listed classes)**

C. Curriculum Overview

Students admitted to the MS in Clinical and Diagnostic Sciences program will begin by meeting with the graduate coordinator to develop a degree plan that is consistent with their educational goals. Students should begin by taking the required core courses (see above), depending on their semester of entry. A typical Student Plan of Study is shown in Appendix C. Students should also begin to develop an idea for a capstone project during their first year of study, and work with a faculty mentor to discuss the feasibility of the study in the time frame provided.

D. Academic Progress – Probation - Dismissal

Academic Progress

Graduate program units conduct a review of all graduate students' academic progress in order to identify problems, evaluate chances of successful completion, and encourage timely progress. Expectations include successfully completing critical non-course academic milestones, within the time limits defined by university regulations, graduate council policies and graduate programs.

A student making inadequate progress is placed on academic probation and provided a clear, written explanation of the problems, along with specific recommendations to remedy problems in a timely fashion.

Academic Probation

The purpose of placing a student on probation is to allow the student time to correct deficiencies. Students identified as not meeting the academic standards and/or requirements for good academic standing must be provided with written notice by the program, which includes acknowledgment of receipt by the student with a copy to Oakland University Graduate School, of their deficiencies, corrective measures, a timeline for completion, and the consequences of not removing the deficiencies.

The decision of a graduate program to remove a student from an internship, practicum, clinical site or service-learning placement must be appealed within the academic unit. These academic procedures should be followed PRIOR to a graduate program recommendation to dismiss a student from a degree program.

Dismissal

The graduate program may recommend academic dismissal for unsatisfactory academic performance, lack of academic progress toward degree or failure to meet graduate program requirements within established time limits. Oakland University Graduate School, in consultation with the graduate program, may also recommend a dismissal for these reasons.

Dismissals for student behavioral issues or academic conduct are covered by separate policies and procedures.

E. Academic Direction and Oversight for the Program

The CDS department chair will appoint a graduate coordinator for the MS in Clinical and Diagnostic Sciences Program from among the department faculty. The Graduate Coordinator will receive one course release per year. The term of service for the graduate coordinator is three years, with no limit on the number of consecutive terms that may be served. The graduate coordinator serves as the program representative and point person and is responsible for the following:

1. Program development
2. Program recruiting
3. Corresponding with prospective students
4. Maintaining program records
5. Chairing Program Committee meetings
6. Setting review criteria for admitting students to the program, in consultation with the admissions committee (composed of two additional CDS faculty)
7. Final approval of degree
8. Communicating dismissal of students who fail to make satisfactory progress (as determined by OU policy on satisfactory progress and appeals)
9. Ongoing program assessment

F. Program Description

This interdisciplinary program emphasizes the role of the clinical laboratory professional in teaching, research, and management. The curriculum addresses the need for graduate trained medical professionals in the healthcare field. Core curriculum courses are designed to prepare the students for advanced roles in their current profession. Electives may be selected to explore other areas of healthcare including patient education, project management, and clinical research. Graduates of the program are prepared for professional positions such as shift supervisors, laboratory management, clinical research specialist, and molecular diagnostics educator in hospital, reference laboratory, and educational settings.

G. Source of Students

MS CDS Combined Bachelor's/Master's Program

Interested students should contact the department Combined Bachelor's/Master's Program advisor (link to be developed) during their junior year. Students apply to the Combined Bachelor's/Master's Program Program by completing an application through the Graduate School https://www.oakland.edu/grad/how-to-apply/ and selecting the Combined Bachelor's/Master's Program application for their discipline. Students who are accepted will be offered deferred admission to the graduate program during their junior year.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses will be reclassified as a graduate student through the Graduate School.

While there is no GPA requirement for admission to the program, students are strongly encouraged to maintain a 3.3 GPA during their undergraduate portion of the degree to be competitive for admission into a clinical rotation. Please see the MLS Program Director for additional information on clinical site placement.

Upon acceptance students complete their graduate-level cross-listed elective courses in their senior year followed by their clinical rotation and one additional year of coursework at the graduate level. Courses in the final year are designed to enhance their educational goals and objectives, while simultaneously reviewing current literature in their field of study and completing a discipline-specific project in their capstone course.

Oakland University is affiliated with the following accredited MLS clinical programs: Detroit Medical Center University Laboratories, Detroit; Ascension St. John Hospital, Detroit; and Beaumont Health, Royal Oak.

Undergraduate students admitted to the BS in CDS
After completing the CDS core curriculum (end of sophomore year) students apply for the MLS specialization by contacting the MLS Coordinator.

Application to the MS CDS Combined Bachelor's/Master's Program program during their junior year
Application to the clinical internship is made during the summer semester prior to the senior year. Acceptance into the internship program is competitive**.** Student's apply through the Medical Technology Internship Matching Program of Michigan, referred to as MTIMPM. The clinical internship is required for national certification as a Medical Laboratory Scientist through the American Society for Clinical Pathology (ASCP). Internships are 6-10 months and completed after graduating with the BS in CDS with MLS specialization. Undergraduate students admitted to the CDS Combined Bachelor's/Master's Program program must be awarded their bachelor's degree prior to entering the MS in CDS graduate programs. Additional information on the MTIMPM application can be found here: https://www.oakland.edu/shs/clinical-and-diagnostic-sciences/medical-laboratory-science/

If the student is not selected for a clinical internship, they may still complete their BS in CDS with MLS specialization, the degree does not depend on successful enrollment in and completion of a clinical internship. Students who do not complete a clinical internship may still continue in the MS CDS Combined Bachelor's/Master's Program program, which may improve the student's application for a future internship.

H. Recruitment Plan

The graduate coordinator will be responsible for student recruitment with help from the SHS recruiting liaison, undergraduate advisors, and the undergraduate MLS Program Coordinator. Components of the recruitment process include communication and financial support. Communications involves direct outreach with potential graduate students, as well as online interaction. Current CDS students and recent graduates will be contacted by Oakland email in order to advertise the new program. Student inquiries will be followed by a phone and/or face-to-face meeting. Additionally, the graduate coordinator will attend university open houses for potential students, involve faculty, students and alumni in recruiting, reach out to professional networks to identify potential students, visit undergraduate feeder institutions, present to OU undergraduate students and honors college students, reach out to employers that support employees who are in a degree program, ask advisory board members to get engaged in recruitment, and work with communications and marketing to develop an online presence.

MS in Clinical and Diagnostic Sciences Combined Bachelor's/Master's Program – Students currently enrolled in the MLS program will be contacted by the MLS Program coordinator via email with information on the MS in Clinical and Diagnostic Sciences Combined Bachelor's/Master's Program. Interested students will be encouraged to reach out to the graduate coordinator to insure they apply to the graduate program and take the required Combined Bachelor's/Master's Program courses.

Financial support for students may be an important component of recruiting, therefore students will be made aware of competitive teaching assistantships or scholarships available at Oakland University that will help defray the cost of tuition. Links to additional financial support will be made available on the recruitment website.

Oakland University is committed to creating and supporting a diverse, equitable and inclusive environment for all students and community members; as well as those visiting our campus. Diversity, equity and inclusion objectives in our graduate courses are grounded in the realization that one cannot build a foundation of collaboration while focusing on differences between contributors. Instead, the foundation must be built on the shared aspirations, commitments, and surmountable challenges of all. In all of health sciences generally and in our MS in Clinical and Diagnostic Sciences Program specifically, learning and diversity are inevitably linked by the common pursuit of knowledge and understanding.

I. Planned Program Enrollment

The attached proforma budget (Appendix E) includes three sections. The first is the "Most Likely Scenario" which includes projections based on current enrollment in similar programs in the state, and feedback from current and former student surveys. This projection assumes the majority of the students will be in the Combined Bachelor's/Master's Program concentration based on current student feedback. With the estimated numbers and new courses required we anticipate the need for a fourth PhD trained faculty within four years of program initiation. The first year is expected to have an enrollment of 15 students, 17 in year two, 20 in year 3, 25 in year 4, and 30 in year 5.

The second proforma budget is the "Best Case Scenario". Students in the traditional master's degree and the professional development concentration will take more classes at the graduate level (24-30 credit hours), compared to students in the Combined Bachelor's/Master's program (12 credit hours). Actual number of students enrolled was decreased in this proforma to simulate an average enrollment across all three concentrations. The first year in this scenario is expected to have an enrollment of 10 students, 12 in year two, 14 in year 3, 17 in year 4, and 20 in year 5.

The third proforma is the "Worst Case Scenario" which assumes difficulty in enrolling students as the program gets started and continuing low enrollment projections. Please note that in all three scenarios the proforma requires a fourth faculty in year four. Also note that all three scenarios have a favorable net income across all years of the projected proforma. This is possible due to utilization of current courses offered in the department and university, and projected numbers being driven largely by students enrolled in the Combined Bachelor's/Master's Program option. The first year in this scenario is expected to have an enrollment of 5 students, 6 in year two, 7 in year 3, 8 in year 4, and 9 in year 5.

J. Advising Students

Students who are considering applying to the MS in Clinical and Diagnostic Science program may contact the academic adviser for the School of Health Sciences to review prerequisite courses and application requirements. Upon acceptance to the program, students should meet with the Graduate Coordinator, and are assigned a faculty advisor for their Capstone studies.

K. Retention Plan

The MS in Clinical and Diagnostic Science Program recognizes the importance of retaining students and providing opportunities to succeed in graduate education. Communication between students, advisors, faculty, the graduate coordinator, and the graduate school is a pivotal component of our retention plan and is emphasized in the following strategies.

1. Connect and engage with students early in the application process.
2. Enhance communication with students and faculty using electronic tools.
3. Identify bottleneck courses and address problems so they do not impact completion.
4. Track retention using the Office of Institutional Research and Assessment/Graduation and Retention resource at OU.
5. Connect and engage with employers of our students and graduates to facilitate research projects and promote the program outside of OU.
6. Survey alumni to determine best practices utilized in engaging students and retention.
7. Offer flexible scheduling of courses and track needs for additional course offerings.
8. Promote and disseminate research opportunities for graduate students in the department as tools for engagement and retention.

L. List of Businesses that would likely Employ Graduates of the Program

The MS in Clinical and Diagnostic Science program prepares individuals to advance their current career in the healthcare profession or pursue additional roles such as:

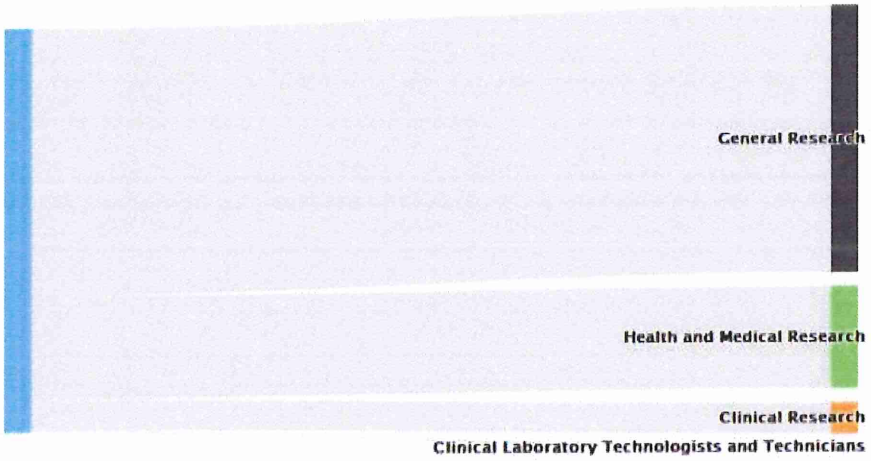
1. Research Study Coordinators
2. Industry Experts in the Field of laboratory science
3. Laboratory Administrators
4. Clinical and Diagnostic Sciences Educators
4. Professional school preparation (Physicians, Physician Assistants, etc.)
5. Molecular and Diagnostic science

These graduates would likely find work in healthcare settings such as hospitals, outpatient clinics, and private clinical services companies. Additional businesses include research facilities and academia. Graduates of the program would also have the credentials to teach undergraduate classes in their discipline at two and four-year institutions. An analysis of occupation groups for this degree is shown below (Burning Glass Report, 2022):

HOW VERSATILE IS THIS DEGREE FOR MY GRADUATES?

Graduates of this program usually transition into any of the 4 different occupation groups:

Occupations Group	Market Size (postings)	Percentage of Career Outcome demand
General Research	718	66.24%
Health and Medical Research	276	25.46%
Clinical Research	84	7.75%
Clinical Laboratory Technologists and Technicians	6	0.55%



IV. Off Campus or Distance Delivered Programs

The degree will be offered in a primarily online format. Students will be expected to access course materials posted to the instructional website. Additional materials required by students enrolled in the program will be covered in the syllabus for each course. Students in the traditional master's degree concentration will be expected to meet with prospective research faculty to develop a research project, complete all required safety training, and conduct laboratory or theoretical clinical diagnostic research under the guidance of CDS faculty in CDS laboratories. All laboratories are currently in the HHB building and include HHB 4018, HHB 5060, and HHB 5017. Additional research space for faculty and students in HHB or other buildings on campus is pending.

V. Needs and Costs of the Program

a. New Resources Needed for the Program
   1. Additional Faculty (2025) – See section II for description
   2. Graduate Coordinator – 1 course release for graduate faculty member
   3. Graduate Assistants – 2 in year three, 1 each year after (4 total)

b. Source of New Resources
   Budgeting for additional faculty and laboratory manager in Proforma Budget (see **Appendix E**)

c. 5-year Budget and Revenue from Program – See **Appendix E**

d. Library Assessment Report – See **Appendix F**

e. Classroom, Laboratory, and Space Needs
   As the curriculum is primarily online the existing classroom space in HHB is sufficient to meet the needs of the new degree offering. Research space for graduate students in the research track will be provided by graduate faculty in current research laboratories located in HHB.

f. Equipment Need
   At this time there is no additional equipment required by the program. Any additional equipment requests will be routed through the Graduate Coordinator, Department Chair, Assistant Dean, then Dean of the School of Health Sciences. Research equipment required by faculty will be a component of new faculty hiring packages or written as an equipment grant following identification of funding source.

VI. Program Assessment Plan

Program Name: **Master's Degree in Clinical and Diagnostic Sciences**

School or College your program resides in: **School of Health Sciences**

Program Level (check all that apply):

Undergrad	☐
Master's	☒
Doctoral	☐

Date Report Submitted:

Current Assessment Contact Representative (& E-mail): Dale Telgenhoff; dtelgenhoff@oakland.edu
Current Department or Program Chair (& E-mail): Sumit Dinda; sdinda@oakland.edu
Current Dean (& E-mail): Kevin Ball; kevinball@oakland.edu

Assessment Components – See Appendix G

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Plan for Analyzing and Using Assessment Results to Improve Program

Direct Measures

1. Final exams in Core and Foundation courses will be reported to the Graduate Program Coordinator and analyzed for mastery of subject matter.
2. Correlation with performance in core/foundation courses with performance in concentration/depth courses.
3. Correlation with performance in concentration/elective courses to admission to graduate or professional school (PhD, MD, DO, PA, DVM, PharmD, OD) provided by student feedback surveys.

Indirect Measure

1. A survey that is sent to alumni at 10 months post-graduation. The survey will contain questions on the program, courses, faculty, and current employment of the alumni. The Graduate Coordinator summarizes the data for all survey items and distributes to faculty. This report is used to measure all program goals.
2. Employment Survey – Current employers of MLS students (hospitals, reference laboratories) will be surveyed in order to determine the change in employment for MLS and non-MLS students completing the MS in Clinical and Diagnostic Sciences Program degree.

Program Improvement

1. Data from the post-assessment exam are reviewed annually and discussed among full- and part-time CDS faculty to identify actions for program change.
2. Student completed course evaluations are reviewed by individual faculty members and the program coordinator. This is meant to help inform instructors of their teaching methodology/delivery.
3. Surveys to alumni at 10 months post program completion and collected by the graduate coordinator. The Graduate Coordinator summarizes the data for all survey items and distributes to faculty.
4. Curriculum review meeting to assess data compiled from the graduate coordinator to identify actions for program change.

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Appendix A – Abbreviated Faculty Vitae

Faculty Name – Sumit Dinda **Title** – Professor and Chair **School** – School of Health Sciences	**Office** – 3164 HHB	**Office Phone** X8676 **Office Email** sdinda@oakland.edu
Degrees – School – Year 1999: PhD, Biomedical Science (Biochemistry), Oakland University, Rochester, MI.	**Research Interest** Molecular mechanism of endocrine disruptor compounds on steroid receptors and various tumor suppressor genes in the breast cancer cells. My other research interest is stem cell biology	
Grants Awarded Center of Biomedical Science award (PI) Oakland University Regulation of Estrogen Receptor (ER) alpha and tumor suppressor genes by Bisphenol-S (BPS) in Breast Cancer Cells. URC Faculty grant (PI) Oakland University The Effects of Epigallocatechin-3-gallate (EGCG) on Steroid Hormone Receptors in Breast Cancer Cells		
Most Recent Publications (limit to 6) 1. Lloyd, V., Morse, M., Purakal, B., Parker, J., Benard, P., Crone, M., Pfiffiner, S., Szmyd, M., & Dinda, S., Hormone-Like Effects of Bisphenol A on p53 and Estrogen Receptor Alpha in Breast Cancer Cells. (Bioresearch Open Access Vol 8.1, 2019). 2. Crone, M., Hallman, K., Lloyd, V., Szmyd, M., Morse, M., Badamo, B. & Dinda, S., The Effects of Black Cohosh on Tumor suppressor gene BRCA1 and ERα in Breast Cancer Cells (Breast Cancer-Targets and Therapy 14 February, 2019: 11, 1-12) 3. Szmyd, M., Lloyd, V., Hallman, K., Aleck, K., Mladenovik,V., McKee, C., Morse, M., Bedgood, T., & Dinda, S. The effects of black cohosh on the regulation of estrogen receptor (ERα) and progesterone receptor (PR) in breast cancer cells (Breast Cancer: Dove Med Press. 2018 Jan 18; 10:1-11.) 4. Aleck, K., Hallman, K., Quigley, M, Lloyd, V., Szmyd, M, Ruskin, D., Bedgood, T., & Dinda, S., Effects of Atrial Natriuretic Peptide on p53 and Estrogen Receptor in T47D Breast Cancer Cells (Bioresearch Open Access Vol 6.1, 2017). 5. Hallman, K., Aleck, K., Quigley, M., Dwyer, B., Lloyd, V., Szmyd, M & Dinda, S., The regulation of steroid receptors by epigallocatechin-3-gallate in breast cancer cells (Breast Cancer-Targets and Therapy- 24 May-2017) 6. Hallman, K., Aleck, K., Quigley, M., Siebert, A., & Dinda, S., The Effects of Turmeric (Curcumin) on Tumor Suppressor Protein (p53) and Estrogen Receptor (ERα) in Breast Cancer Cells (Breast Cancer-Targets and Therapy; 10 March -2017).		
Graduate Courses Taught (relevant to new degree) CDS-5010 (Human Pathology) BIO-5622 (Endocrinology)	**Prospective Graduate Courses (relevant to new degree)** CDS 5200 (Literature Review) CDS 5995 (Directed Research) CDS 5996 (Independent Study)	

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Faculty Name – Dale Telgenhoff **Title** – Associate Professor and CDS Graduate Coordinator **School** – School of Health Sciences	**Office** – 3161 HHB	**Office Phone** x8689 **Office Email** dtelgenhoff@oakland.edu

Degrees – School – Year **Ph.D.** Michigan State University, **2002** **M.B.A.,** Tarleton State University, **2015** **Categorical in Clinical Chemistry (ASCP),** Tarleton State University, **2017** **Histotechnologist Certification (ASCP)** Tarleton State University, **2009** **B.A.,** Western Michigan University, **1996**	**Research Interest** Factors that affect wound healing. In particular, the migration of skin cells into the wound area, and the effects of pathologic states such as diabetes and hyperlipidemia on this migration. Utilizing cells grown in culture to mimic the wound environment in both normal and underlying pathologies. The goal of this research is to develop a clear understanding of the wound healing process in patients with comorbidities.

Grants Awarded

Education and Research Fund Grant (PI) – 2020
American Society for Clinical Laboratory Sciences
Hyperglycemic glycosylation of proteins in cholesterol signaling

Seed and Sprout – SHS (PI) – 2020
Oakland University
The interplay of statin therapy, elevated glucose, and high cholesterol in the wound healing response

Travel Award – SHS – 2019
Oakland University

Most Recent Publications (limit to 6)

1. The effects of stress on learning and psychological well-being: A therotical model. G. Burch, D. Telgenhoff, and N. Heller. Journal of Management Education. In revision, 2020
2. Integrating Technology, Teaching, and Research in the Medical Laboratory Science Programs. Dubansky, B., K. Blakely, S. Hoger, M. McAfee, and D. Telgenhoff. Tech in the Classroom, Feb 2019
3. Molecular Genetic Testing Laboratory Management: Emerging Challenges for Quality Assurance. Henslee, C. and D. Telgenhoff. J of Histotechnology, Accepted Dec. 2018
4. Biological Effects of In Vivo Administration of the Potential Therapeutic Protein Crosslinker Genipin to Horses. Bellefeuille, M., D. Peters, M. Nolin, P. Slusarewicz, and D. Telgenhoff, Aus. Vet J, Sept. 2016.
5. Regulations for Non-Pathologist Grossing. Telgenhoff, D. Texas Society for Histotechnology Fall Newsletter, 2014.
6. Effects of cholesterol carrier proteins on fibroblast cell migration. Taylor S. and D. Telgenhoff, Exper Biol, 2013

Graduate Courses Taught (relevant to new degree	**Prospective Graduate Courses (relevant to new degree)** CDS 5200 (Literature Review) CDS 5995 (Directed Research) CDS 5996 (Independent Study) CDS 5336 (Biotechnology and Biomedical Ethics)

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	CDS 6300 (Molecular and Cellular Pathology)

Faculty Name – Shicheng Chen **Title** – Assistant Professor **School** – School of Health Sciences	**Office** – 3163 HHB	**Office Phone** X8662 **Office Email** Schen5@oakland.edu
Degrees – School – Year **Ph.D.** Chinese University of Hong Kong, **2003** **M.S.** Shandong University, **2000** **B.S.** Shandong University, **1997** **Certificate program CLS,** Michigan State University, **2018**	**Research Interest** Development of novel intervention strategies for mosquito-borne diseases. interested in 1) understanding how mosquito symbionts (such as flavobacteria, Wolbachia and Asaia) impact on host development and health; 2) studying how symbionts interact with parasites and viruses in mosquitoes; and 3) deploying symbiotic microbes to produce mosquitocidal toxins, anti-parasite and anti-virus effector molecules.	
Grants Awarded		
Most Recent Publications (limit to 6) Biofilm Spreading by the Adhesin-Dependent Gliding Motility of *Flavobacterium johnsoniae*. 1. Internal Structure of the Biofilm. Keiko Sato, Masami Naya, Yuri Hatano, Yoshio Kondo, Mari Sato, Keiji Nagano, Shicheng Chen, Mariko Naito, Chikara Sato, Int. J. Mol. Sci. 22(4), 1894, 2021. Effects of Supplement of *Marichromatium gracile* YL28 on Water Quality and Microbial Structures in Shrimp Mariculture Ecosystems. Liang Cui, Bitong Zhu, Xiaobo Zhang, Zhuhua Chan, Chungui Zhao, Runying Zeng, Suping Yang, Shicheng Chen. Genes 12(1), 40, 2021 *Elizabethkingia anophelis*: Physiologic and Transcriptomic Responses to Iron Stress, Chen, Johnson, Yu, Nelson, Walker. Frontiers in Microbiology, 2020 Comparative genomic and transcriptomic analyses of chemosensory genes in the citrus fruit fly *Bactrocera* (Tetradacus) *minax*. Jun-Feng Cheng, Ting Yu, Zhong-Jian Chen, Shicheng Chen, Yu-Peng Chen, Lei Gao, Wen-Hu Zhang, Bo Jiang, Xue Bai, Edward D Walker, Jun Liu, Yong-Yue Lu. Scientific reports. 10: 1, 1-14, 2020. A Comparative Transcriptome Analysis of *Volvariella volvacea* Identified the Candidate Genes Involved in Fast Growth at the Mycelial Growth Stage. Ming Liu Ting Yu Puneet Kumar Singh Qinjian Liu Hao Liu Qingfeng Zhu Zitian Xiao Jiang Xu Yangyang Peng Shiyu Fu Shicheng Chen Huanqing He, Genes, 2020 Global analysis of protein synthesis in *Flavobacterium johnsoniae* reveals the use of Kozak-like sequences in diverse bacteria. William D Baez, Bappaditya Roy, Zakkary A McNutt, Elan A Shatoff, Shicheng Chen, Ralf Bundschuh, Kurt Fredrick. Nucleic acids research. 47: 20, 10477-10488. 2019.		
Graduate Courses Taught (relevant to new degree	**Prospective Graduate Courses (relevant to new degree)** CDS 5200 (Literature Review) CDS 5995 (Directed Research) CDS 5996 (Independent Study) CDS 6300 (Molecular and Cellular Pathology)	

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Appendix B – Degree Requirements

CDS MS Degree Requirements

PREPARATORY COURSES – undergraduate courses				
Course	Title	Credits	Prerequisites	
Biology	Biology I, Physiology, and Microbiology	12		
Math	College Algebra	4		

CORE COURSES – 8 CH					
Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5410	Statistical Methods in Public Health	3	None		75
PH5411	Statistical Meth in Public Health Lab	1			0
CDS 5200	Literature Review	1	None	X	100
CDS 6300	Molecular and Cellular Pathology	3	None	X	100

CONCENTRATION / DEPTH – master degree COGNATE / DISCIPLINE SPECIFIC COURSES – doctoral degree					
Course	Title	Credits	Prerequisites	New (x)	% Distance

RECOMMENDED ELECTIVE COURSES – 19 CH					
Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5700	Health Policy and Management	4	None		100
ED 7500	Contemporary American Higher Education	4	None		100
CDS 6200	Laboratory Management	3	None	X	100
BIO 5622	Endocrinology	4	BIO 2600 (Physiology)		100
EXS 5000	Introduction to Research	4	None		100

EXIT COURSES – thesis, dissertation, internship – 3 CH					
Course	Title	Credits	Prerequisites	New (x)	% Distance
CDS 6000	CDS Capstone	3	None	X	Variable by mentor

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Professional Development Concentration Degree Requirements

PREPARATORY COURSES – undergraduate courses

Course	Title	Credits	Prerequisites	
Biology	Biology I, Physiology, and Microbiology	12		0
Math	College Algebra	4		0

FOUNDATION COURSES – graduate courses required prior to core

Course	Title	Credits	Prerequisites	New (x)	% Distance

CORE COURSES – 8 CH

Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5410	Statistical Methods in Public Health	3	None		75
PH5411	Statistical Meth in Public Health Lab	1			0
CDS 5200	Literature Review	1	None	X	100
CDS 6300	Molecular and Cellular Pathology	3	None	X	100

CONCENTRATION / DEPTH – master degree – 13 CH
COGNATE / DISCIPLINE SPECIFIC COURSES – doctoral degree

Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5700	Health Policy and Management	4	None		100
PA 5100	Foundations of Public Administration	3	None		100
ORG 5300	Organizational Behavior	3	None		100
CDS 6200	Laboratory Management	3	None	x	100

RECOMMENDED ELECTIVE COURSES – 6 CH

Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5650	Social Determinates of Health	4	None		100
EXS 5600	Health and Disease	2	None		100

EXIT COURSES – thesis, dissertation, internship

Course	Title	Credits	Prerequisites	New (x)	% Distance
CDS 6000	CDS Capstone	3	Final semester		100

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CDS MS Combined Bachelor's/Master's Program

PREPARATORY COURSES – undergraduate courses

Course	Title	Credits	Prerequisites	
CDS	CDS w/ Specialization in Medical Laboratory Science (MLS)	128		

FOUNDATION COURSES – graduate courses required prior to core

Course	Title	Credits	Prerequisites	New (x)	% Distance
CDS 5240	Immunohematology	3	BIO 2600 (C), CDS 2260 (B-), and CDS 4230 (C) and coreq: CDS 4241	X	0
CDS 5020	Molecular Diagnostics	3	CDS 2260 (B-) and CDS 4000 (C)	X	0
CDS 5350	Clinical Parasitology, Mycology, Virology	3	BIO 1200, CDS 4300	X	0
CDS 5400	Clinical Correlations	3	CDS 4140, CDS 4160, CDS 4240, CDS 4270, and CDS 4300	X	0

CORE COURSES – 8 CH

Course	Title	Credits	Prerequisites	New (x)	% Distance
PH 5410	Statistical Methods in Public Health	3	None		75
PH5411	Statistical Meth in Public Health Lab	1			0
CDS 5200	Literature Review	1	None	X	100
CDS 6300	Molecular and Cellular Pathology	3	None	X	100

CONCENTRATION / DEPTH – master degree
COGNATE / DISCIPLINE SPECIFIC COURSES – doctoral degree

Course	Title	Credits	Prerequisites	New (x)	% Distance

RECOMMENDED ELECTIVE COURSES

Course	Title	Credits	Prerequisites	New (x)	% Distance
CDS 5010	Human Pathology	4	None		75
CDS 6200	Laboratory Management	3	None	X	100

EXIT COURSES – thesis, dissertation, internship

Course	Title	Credits	Prerequisites	New (x)	% Distance
CDS 6000	CDS Capstone	3	Final semester		100

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Appendix C – Typical Student Plan of Study

CDS MS Program

Clinical and Diagnostic Sciences (CDS) M.S. Degree Plan

Master of Science (MS)

School of Health Sciences

Degree Plan of Study for Catalog Year: 2022 - 2023

This is a recommended course sequencing for this major.

Course Number & Course Rubric	Course Title	Credit Hours	Min. Grade	Prerequisite(s)	Notes
Fall Semester Year 1					
CDS 6300	Molecular and Cellular Pathology	3			New Course - ONLINE
PH 5400	Statistical Methods in Public Health	4			Partially Onlne
Winter Semester Year 1					
CDS 5200	Literature Review	1			New Course - ONLINE
CDS Elective		6			
Summer Semester Year 1					
CDS Elective		3			
Fall Semester Year 2					
CDS 6000	CDS Capstone	3			Arranged
CDS Elective		4			
Winter Semester Year 2					
CDS Electives		6			
Total:		**30**			

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CDS MS with Professional Development Concentration

Clinical and Diagnostic Sciences (CDS) M.S. Degree Plan - Professional Development Concentration

Master of Science (MS)

School of Health Sciences

Degree Plan of Study for Catalog Year: 2022 - 2023

This is a recommended course sequencing for this major.

Course Number & Course Rubric	Course Title	Credit Hours	Min. Grade	Prerequisite(s)	Notes
Fall Semester Year 1					
CDS 5200	Literature Review	1			
CDS 6300	Molecular and Cellular Pathology	3			
PH 5400	Statistical Methods in Public Health	4			
Winter Semester Year 1					
PH 5700	Health Policy and Management	4			
PA 5100	Foundations of Public Administration	3			
Summer Semester Year 1					
CDS or Professional Elective		3			
Fall Semester Year 2					
ORG 5300	Organizational Behavior	3			Online
CDS or Professional Elective		3			
Winter Semester Year 2					
CDS or Professional Elective		3			
CDS 6000	CDS Capstone	3			
Total:		30			

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CDS MS (Students entering from Combined Bachelor's/Master's Program)

Clinical and Diagnostic Sciences (CDS) M.S. Degree Plan (for OU 4+1 Students)

Master of Science (MS)

School of Health Sciences

Degree Plan of Study for Catalog Year: 2022 - 2023

This is a recommended course sequencing for this major.

Course Number & Course Rubric	Course Title	Credit Hours	Min. Grade	Prerequisite(s)	Notes
Fall Semester Year 1					
CDS 5240	Immunohematology	3	B	BIO 2600 (C), CDS 2260 (B-), and CDS 4230 (C) and coreq: CDS 4241	Grad component of existing course
Winter Semester Year 1					
CDS 5020	Molecular Diagnostics	3	B	CDS 2260 (B-) and CDS 4000 (C)	Grad component of existing course
CDS 5350	Clinical Parasitology, Mycology, Virology	3	B	BIO 1200, CDS 4300	Grad component of existing course
CDS 5400	Clinical Correlations	3	B	CDS 4140, CDS 4160, CDS 4240, CDS 4270, and CDS 4300	Grad component of existing course
Fall Semester Year 2					
CDS 5200	Literature Review	1			
CDS 6300	Molecular and Cellular Pathology	3			
PH 5400	Statistical Methods in Public Health	4			
Winter Semester Year 2					
Electives	Electives	7			
Summer Semester Year 2					
CDS 6000	CDS Capstone	3			Final Semester
Program Notes:					

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Appendix D – Detailed New Course Descriptions

CDS 5200 Literature Review

Course Description:
Review of current literature topics in the clinical laboratory sciences. Emphasis is placed on the critique of methods, research design, and value to the current body of knowledge. May be repeated for credit for a maximum of 3 credit hours.

Text: None Required

Communication:
Moodle is the official online course management system at Oakland University. Information will be posted here such as grades, articles, and pertinent course material. Accepted forms of communication with faculty will either be through Moodle or via the Oakland email system. Check Moodle frequently for updates.

Format:
You will be assigned an instructor to facilitate your understanding of the material in the selected article. It is your responsibility to communicate with the instructor and set-up a time for questions based on their availability. I highly recommend you at least meet once with them to review the highlights of the article selected prior to presentation.

Grading:
Presentation: 100 points
Participation: 60 points total (5 points per paper presented)
5 points awarded for class participation which will include:
1/2 page summary of assigned articles (not required of the student presenter)
1-2 questions pertaining to the articles (which should be posed to the presenter)
Quiz (if faculty deems article was not read)
Total: 14 participation sessions, drop 2, 5 x 12 = 60

Total = 160 points for the course (144-160 = A; 128-143 = B, 110-127 = C, 90-109 = D, <90 = F)
Deadlines:

Faculty will select articles and distribute to students (post on Moodle) no later than 2 weeks prior to class. Student presenters must be completely prepared with a 30 minute presentation on their assigned presentation day. Non-presenting students must have a 1/2 page summary & 1-2 questions prepared.

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CDS 6300: Molecular and Cellular Pathology
Course Syllabus

Catalogue Description:

A study of the molecular and cellular aspects of human disease. Students are introduced to basic etiologies and pathogenesis that underlie all diseases. More detailed discussions of pathologic mechanisms including structural lesions (morphology) and functional consequences (clinical presentation) will be discussed within specific diseases of organ systems. Emphasis will be placed on regulation of the eukaryotic cell cycle, signal transduction pathways, molecular mechanisms, receptor/membrane function and their relationship to tumor biology, endocrine dysfunction, dyslipidemia and other pathophysiologic conditions.

Required Texts:

Course Objectives:

After completion of this course students will be able to:

Use terminology associated with clinical and anatomic pathology
Correlate pathophysiologic mechanisms with the development of disease
Discuss molecular mechanisms of cell signaling

PRESENTATION/PAPER TOPIC

Your assignment is to write and present a review about a particular disease state. You may choose any of the diseases covered in this course, or in the textbook. You should also include information on the clinical manifestations of the disease, **and the diagnostic tests used to diagnosis the particular disease**. Your essay should be 10-15 pages, typed in a font of your choice but no larger than 12 point, and double spaced. The references (minimum of 10) you used should be cited in alphabetical order on the third page with a centered heading "References".

You must also present this topic at the end of the semester in PowerPoint format. Your presentation should be 15-20 minutes in length. The PowerPoint presentations should include your references, and any figures or tables taken from other sources should be cited on the same page and at the end of the presentation. **You will also provide a list of 5 questions to the class based on the content of your presentation**, which may be used on the final exam.

CDS 6000: Clinical and Diagnostic Sciences Capstone
Course Syllabus

Description:

Students will use the information from all their CDS courses and electives to address a problem or important issue in the healthcare profession. In this course, students will design and begin working on a project in clinical education, healthcare operations, or healthcare practice. The student will submit a project proposal for approval within the first three weeks of the course. The faculty advisor will work with the student during Capstone to monitor their progress and evaluate milestones in the project. Students will submit a deliverable by the end of the semester under the direction of their faculty advisor. The project will address a problem or important issue in the healthcare profession. Note the implementation of the project is not a requirement of the course, only the development of a plan.

Course Objectives:

After completion of this course students will be able to:
1. Design a project with clear goals and objectives relevant to clinical and diagnostic sciences or healthcare in general.
2. Work with the faculty advisor to develop a timeline and final product delivery format (paper, presentation, publication, etc.)

Grade Composition: The course shall be graded on a pass/fail basis.

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Graduate Council

CDS 6200: Laboratory Management
Course Syllabus

Catalogue Description:

This course is designed to acquaint students with the principles of operating a clinical laboratory. Emphasis is on personnel, financial, and general administrative management. Also, the student is introduced to writing instructional objectives, constructing evaluation instruments, and planning instructional strategies and establishing a professional development program. Ethical issues in laboratory medicine are also discussed.

Required Texts: Laboratory Management, Principles and Processes, Fourth Edition, Harmening, D. (2020)

Course Objectives:

After completion of this course students will be able to:

1. Use terminology associated with clinical and anatomic laboratory.
2. Apply concepts of quality assurance and reporting of clinical instrumentation.
3. Discuss challenges with recruiting and managing quality laboratorians.
4. Utilize management tools to assess laboratory performance and enhance professional development.
5, Analyze ethical challenges in laboratory medicine.
6. Review future challenges facing clinical and reference laboratories.

Grade Composition: The course shall be graded on a point system with a maximum of 600 points

Points will be accumulated as follows:

Three Exams	300
Final Exam	100
Discussion Board Leadership	50
Discussion Board Participation	50
Final Paper	100
Total	600

Appendix E – Proforma Budget

The attached proforma budget includes three sections. The first is the "Most Likely Scenario" which includes projections based on current enrollment in similar programs in the state, and feedback from current and former student surveys. This projection assumes the majority of the students will be in the Combined Bachelor's/Master's Program concentration based on current student feedback. With the estimated numbers and new courses required we anticipate the need for a fourth PhD trained faculty within four years of program initiation.

The second proforma budget is the "Best Case Scenario". Students in the traditional master's degree and the professional development concentration will take more classes at the graduate level (24-30 credit hours), compared to students in the Combined Bachelor's/Master's program (12 credit hours). Actual number of students enrolled was decreased in this proforma to simulate an average enrollment across all three.

The third proforma is the "Worst Case Scenario" which assumes difficulty in enrolling students as the program gets started and continuing low enrollment projections. Please note that in all three scenarios the proforma requires a fourth faculty in year four. Also note that all three scenarios have a favorable net income across all years of the projected proforma. This is possible due to utilization of current courses offered in the department and university, and projected numbers being driven largely by students enrolled in the Combined Bachelor's/Master's Program option.

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SBRC Proforma Template

FY2022

Most Likely Scenario		2022-2023	2023-2024	2024-2025	2025-2026	2026-2027
				2		
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Est. New Students to Program		$ 11	$ 13	$ 17	$ 20	$ 25
1st Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
2nd Year Cohort Revenue		$ -	$ 158,945	$ 187,844	$ 245,642	$ 288,990
3rd Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ -	$ 158,945	$ 187,844	$ 245,642	$ 288,990
Less: Avg Financial Aid (30%)		$ -				
Net Tuition Revenue 4 plus 1		**$ -**	**$ 158,945**	**$ 187,844**	**$ 245,642**	**$ 288,990**
Net Tuition Revenue 2 year		**$ 60,206**	**$ 144,495**	**$ 192,660**	**$ 240,825**	**$ 288,990**
Net Tuition Revenue from 4th year of 4 plus 1 $240.75 per credit			**$ 31,779**	**$ 37,557**	**$ 49,113**	**$ 57,780**
Total Net Tuition Revenue		**$ 60,206**	**$ 335,219**	**$ 418,061**	**$ 535,580**	**$ 635,760**
Expenses						
Salaries						
Faculty Salaries	6101			$ 73,000	$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311			$ 8,320	$ 12,480	$ 16,640
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 87,536**	**$ 91,696**	**$ 95,856**
Fringe Benefits	6701	$ 497	$ 497	$ 30,646	$ 30,646	$ 30,646
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 118,182**	**$ 122,342**	**$ 126,502**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 25,688	$ 38,532	$ 51,376
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 71,516	$ 75,256	$ 92,014
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 189,698**	**$ 197,598**	**$ 218,516**
Net Income (Loss)		**$ 18,289**	**$ 286,789**	**$ 228,362**	**$ 337,981**	**$ 417,244**

Oakland University

Graduate Council

SBRC Proforma Template

FY2022

Best-Case Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		$ 15	$ 17	$ 20	$ 25	$ 30
1st Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
2nd Year Cohort Revenue		$ -	$ 216,743	$ 245,642	$ 288,990	$ 361,238
3rd Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ -	$ 216,743	$ 245,642	$ 288,990	$ 361,238
Less: Avg Financial Aid (30%)		$ -				
Net Tuition Revenue 4 plus 1		**$ -**	**$ 216,743**	**$ 245,642**	**$ 288,990**	**$ 361,238**
Net Tuition Revenue 2 year		**$ 96,330**	**$ 228,784**	**$ 301,031**	**$ 373,279**	**$ 445,526**
Net Tuition Revenue from 4th year of 4 plus 1 $240.75 per credit			**$ 43,335**	**$ 49,113**	**$ 57,780**	**$ 72,225**
Total Net Tuition Revenue		**$ 96,330**	**$ 488,862**	**$ 595,786**	**$ 720,049**	**$ 878,989**
Expenses						
Salaries						
Faculty Salaries	6101			$ 73,000	$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311			$ 8,320	$ 12,480	$ 16,640
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 87,536**	**$ 91,696**	**$ 95,856**
Fringe Benefits	6701	$ 497	$ 497	$ 30,646	$ 30,646	$ 30,646
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 118,182**	**$ 122,342**	**$ 126,502**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 25,688	$ 38,532	$ 51,376
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 71,516	$ 75,256	$ 92,014
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 189,698**	**$ 197,598**	**$ 218,516**
Net Income (Loss)		**$ 54,413**	**$ 440,432**	**$ 406,087**	**$ 522,451**	**$ 660,472**

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Graduate Council

SBRC Proforma Template

FY2022

Worst-Case Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		5	6	7	8	9
1st Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
2nd Year Cohort Revenue		$ -	$ 72,248	$ 86,697	$ 101,147	$ 115,596
3rd Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ -	$ 72,248	$ 86,697	$ 101,147	$ 115,596
Less: Avg Financial Aid (30%)		$ -				
Net Tuition Revenue 4 plus 1		**$ -**	**$ 72,248**	**$ 86,697**	**$ 101,147**	**$ 115,596**
Net Tuition Revenue 2 year		**$ 36,124**	**$ 96,330**	**$ 132,454**	**$ 168,578**	**$ 204,701**
Net Tuition Revenue from 4th year of 4 plus 1 $240.75 per credit			**$ 14,445**	**$ 17,334**	**$ 20,223**	**$ 23,112**
Total Net Tuition Revenue		**$ 36,124**	**$ 183,023**	**$ 236,485**	**$ 289,948**	**$ 343,409**
Expenses						
Salaries						
Faculty Salaries	6101			$ 73,000	$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311			$ 8,320	$ 12,480	$ 16,640
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 87,536**	**$ 91,696**	**$ 95,856**
Fringe Benefits	6701	$ 497	$ 497	$ 30,646	$ 30,646	$ 30,646
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 118,182**	**$ 122,342**	**$ 126,502**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 25,688	$ 38,532	$ 51,376
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 71,516	$ 75,256	$ 92,014
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 189,698**	**$ 197,598**	**$ 218,516**
Net Income (Loss)		**$ (5,793)**	**$ 134,593**	**$ 46,787**	**$ 92,349**	**$ 124,893**

Oakland University

Graduate Council

Appendix F – Library Budget Report

Memorandum

To: Dale Telgenhoff, Associate Professor and Graduate Coordinator, SHS
From: Helen Levenson, Collection Development Librarian, University Libraries
Julia Rodriguez, Librarian Liaison to SHS, University Libraries
Re: Library collection evaluation for proposed MS in Clinical and Diagnostic Sciences
Date: April 26, 2020

In order to complete this library collection evaluation for the proposed MS in Clinical and Diagnostic Sciences, we reviewed the draft program proposal in relation to the University Libraries' current resources relevant to coursework for clinical and diagnostic sciences, analyzed the SCImago Journal Ranking (SJR) for clinical and diagnostic sciences journals, and examined resources of comparable M.S. programs. The following is an assessment of the University Libraries' ability to support the proposed new degree program.

Medical and Health Science Indexes

The University Libraries maintain subscriptions to significant medical and health science and multidisciplinary journal indexes that cover the field of clinical and diagnostic sciences. These include the following:

- *ABI/Inform Complete*, international coverage of business and economic literature including hospital administration and the healthcare industry;
- *CINAHL Complete*, a health sciences database that provides full-text access to journals;
- *Cochrane Library*, a collection of databases that contain evidence for healthcare decision-making;
- *EMBASE*, Comprehensive coverage of the preclinical, medical and pharmacological sciences. Strong in the European literature;
- *PubMed Central* and *MEDLINE*, the premier databases for biomedical, life science, and allied health information;
- *Scopus*, a large citation and abstract database covering science and medical peer-reviewed literature;
- *Web of Science*, another large index covering life sciences and allied health.

Through use of these databases, users are able to access full-text coverage of the periodical literature through the University Libraries' openURL article linker, the "Get It" link. This service links databases to the Libraries' e-journal packages. The library also subscribes to the AccessMedicine resources that include full-text medical and basic sciences books from McGraw-Hill including relevant titles such as: *Laposata's Laboratory Medicine: The diagnosis of disease in the clinical laboratory.*

Monographs

An analysis of the Libraries' monograph collection found that the University Libraries have a good, basic collection related to health systems but parts of the collection are lacking in currency. Updated monographs should be acquired for the subjects where ebook access is limited and/or outdated. See Table 1 for a breakdown of the monograph collection related to the study of clinical and diagnostic sciences and see Appendix B for projected costs to bring the monograph collection up to date.

Table 1: Total monograph titles, subjects related to the proposed M.S. in Clinical and Diagnostic Sciences:

Call # - Subject	PRINT	EBOOK
RB1-17 General works - Pathology	10	1
RB24-33 Pathological anatomy and histology	23	23
RB37-56.5 Clinical pathology. Laboratory technique	73	147
RB57 Post-mortem examination. Autopsies	1	0
RB127-150 Manifestations of disease	75	116
RB151-214 Theories of disease. Etiology. Pathogenesis	93	93
RC71-78.7 Examination. Diagnosis Including radiography	140	279
RC109-216 Infectious and parasitic diseases	138	241
RC254-282 Neoplasms. Tumors. Oncology	414	837
RC633-647.5 Diseases of the blood and blood-forming organs	50	62
RL760-785 Diseases due to parasites	0	1
QR1-74.5 General Microbiology	240	173
QR75-99.5 Bacteria	92	35
QR99.6-99.8 Cyanobacteria	0	2
QR100-130 Microbial ecology	38	60
QR171 Microorganisms in the animal body	4	9

QR180-189.5 Immunology	188	113
QR355-502 Virology	71	33

To ensure that the Libraries' monographic collection adequately supports the new proposed degree program, funding is needed to purchase approximately ten monographs each year for the first three years and five titles thereafter in corresponding subject areas to enable the University libraries to maintain up-to-date resources. See Appendix C for associated costs.

Journals

The University Libraries' coverage of the journal literature in clinical and diagnostic sciences is fairly strong. Appendix A provides a sample list of the major peer-reviewed subscription journals related to the study of clinical and diagnostic sciences to which the Libraries currently have online access. Leading open access journals in the field are also indexed and discoverable through the Libraries' discovery tool and databases. Relevant scholarly and trade literature is available online through the Libraries' discovery tool, general interest periodical databases (e.g. *Academic OneFile*), and journal publisher packages (e.g. Wiley, Elsevier, Cambridge, and Oxford), in addition to the subject-specific periodical indexes listed above.

Although the University Libraries have a good foundational periodical collection for this proposed new degree, we recommend the addition of subscriptions to the three titles listed in Appendix B, which also includes the individual title subscription costs, and are included in their totality in Appendix C. These new subscriptions, in conjunction with the Libraries current journal holdings would more than adequately address the proposed M.S. in Clinical and Diagnostic Sciences stated needs and would ensure these needs are met on an ongoing basis. As the degree continues, the Libraries can evaluate interlibrary loan transactions by the program's faculty and students to assist in identifying any additional journal titles that would be most useful to add to the Libraries' collection at a later date.

Support for Current Library Resources

As noted above, OU Libraries already subscribe to a number of online resources that will support a M.S. in Clinical and Diagnostic Sciences. However, due to anticipated annual inflationary cost increases for journals and research databases (historically averaging eight percent or more per year), the Libraries cannot guarantee that we will be able to maintain subscriptions even to our current resources. Therefore, we ask that University Libraries be given $5,000 per year (with inflationary increases in each year) to assist us in funding these resources, especially the current journal packages that are critical to this program as well as to the broader curriculum of the School of Health Sciences.

Oakland University

Graduate Council

Appendix A: Selection of peer-reviewed journal titles available online to support a MS in Clinical and Diagnostic Sciences

Selection of Journal Titles available online
American Journal of Neuroradiology
American Journal of Roentgenology
Annual Review of Pathology-Mechanisms of Disease
Biomedical Optics Express
Blood
Cell
Circulation Research
Circulation-cardiovascular Imaging
Clinical Microbiology Reviews
Clinical Neuroradiology
Clinical Nuclear Medicine
Computerized Medical Imaging and Graphics
European Heart Journal-Cardiovascular Imaging
European Journal of Nuclear Medicine and Molecular Imaging
European Journal of Radiology
European Radiology
Human Brain Mapping
Ieee Transactions on Medical Imaging
Insights Into Imaging
International Journal of Hyperthermia
International Journal of Radiation Oncology Biology Physics
Investigative Radiology
Jacc-Cardiovascular Imaging
Journal of Biomedical Optics
Journal of Cardiovascular Computed Tomography
Journal of Cardiovascular Magnetic Resonance

Journal of Digital Imaging
Journal of Hematology & Oncology
Journal of Magnetic Resonance Imaging
Journal of Nuclear Cardiology
Journal of The American College of Radiology
Journal of Vascular and Interventional Radiology
Korean Journal of Radiology
Lancet Infectious Diseases
Lancet Oncology
Magnetic Resonance in Medicine
Medical Image Analysis
Medical Physics
Molecular Imaging
Molecular Imaging and Biology
Nature Medicine
Nature Reviews Immunology
Neuroimage
Nmr In Biomedicine
Photoacoustics
Physics in Medicine and Biology
Plos Pathogens
Practical Radiation Oncology
Quantitative Imaging in Medicine and Surgery
Radiation Oncology
Radiotherapy and Oncology
Seminars in Nuclear Medicine
Seminars in Radiation Oncology
Strahlentherapie Und Onkologie
Trends in Parasitology
Ultrasonics

Ultrasonography
Ultrasound in Obstetrics & Gynecology

Appendix B: Recommended Journal Subscriptions for the Proposed MS in Clinical and Diagnostic Sciences

Journal name	Current annual subscription cost
The Journal of Nuclear Medicine	$977.00
Radiology & RadioGraphics package*	$3927.00
*Purchased as a journal package is approximately $700.00 less than individual title subscriptions, which are $2,881.00 and $1,739.00 respectively..	

Appendix C: Proposed Five-Year Budget for Library Resources to Support a MS in Clinical and Diagnostic Sciences

Appendix C

Library Budget for Proposed M.S. in Clinical and Diagnostic Sciences

	Year 1	Year 2	Year 3	Year 4	Year 5
Monographs[1]	$ 14,400	$ 15,120	$ 15,876	$ 8,346	$ 8,764
Journal subscriptions[1]	$ 4,904	$ 5,296	$ 5,720	$ 6,178	$ 6,672
Support for current resources[2]	$ 5,000	$ 5,400	$ 5,832	$ 6,300	$ 6,802
Total	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238

[1]Presumes purchase of 10 books per year for the first 3 years in areas for which we have minimal holdings and 5 books per year thereafter.
[1]Presumes a 5% annual inflation rate.
[2]Presumes an 8% annual inflation rate.

Oakland University

Graduate Council
Appendix G – Graduate Assessment Plan

Program Name: **Master's Degree in Clinical and Diagnostic Sciences**

School or College your program resides in: **School of Health Sciences**

Program Level (check all that apply):

Undergrad ☐
Master's ☒
Doctoral ☐

Date Report Submitted:

Current Assessment Contact Representative (& E-mail): Dale Telgenhoff; dtelgenhoff@oakland.edu
Current Department or Program Chair (& E-mail): Sumit Dinda; sdinda@oakland.edu
Current Dean (& E-mail): Kevin Ball; kevinball@oakland.edu

Assessment Components

(1) OU Mission	(2) Program Goals	(3) Student Learning Outcomes	(4) Assessment Measures
"...Oakland University advances knowledge..."	A. Graduates will display a mastery of clinical and diagnostic sciences.	1. Recall criteria for healthcare safety, skills, and professional issues.	Final exams in foundation and core courses
		2. Explain the normal physiology of chemical constituents, formed elements, and microorganisms in the body and correlate their changes with potential disease states.	Performance in concentration/depth courses and selected electives
		3. Demonstrate knowledge of the effect that diagnostic data has upon patient care	Performance in concentration/depth courses and selected electives
"...engage students in distinctive educational experiences...valuable public service."	B. Graduates will critically analyze data by analyzing, reviewing, and interpreting data that are relevant to the demands of an	5. Evaluate quality control/assurance systems for established laboratory procedures to the extent that quality of output is assured	Performance in concentration/depth courses and selected electives

	advanced professional in clinical and diagnostic sciences, as appropriate, for each discipline.		
		6. Evaluate, interpret, and critique studies given clinical data	Performance in literature review course(s)
		7. Demonstrate critical thinking and problem solving when given a clinical case study or relevant information to a particular disorder	Performance in literature review course(s) and independent study
		8. Successfully advance in current career through attainment of the degree	Post-graduate surveys
"...student-engaged research..."	C. Graduates will apply knowledge of evidence-based practice to critically evaluate clinical case examples.	9. Apply research principles to clinically relevant situations in diagnostic and biomedical sciences	Performance in literature review course(s), independent study, and graduate research
	D. Graduates will participate in research projects or independent study designed to expand knowledge within the discipline.	10. Work with faculty mentor to successfully complete research or independent study project	Performance in independent study and graduate research.

Who Will Participate in Carrying Out the Assessment Plan	What Will Be Their Specific Role/s
Graduate Program Coordinator	Lead faculty meeting discussions, Curriculum review, Conduct Surveys, Survey data analysis, Reporting

Plan for Analyzing and Using Assessment Results to Improve Program

Direct Measures

1. Final exams in Core and Foundation courses will be reported to the Graduate Program Coordinator and analyzed for mastery of subject matter.

2. Correlation with performance in core/foundation courses with performance in concentration/depth courses.
3. Correlation with performance in concentration/elective courses to admission to graduate or professional school (PhD, MD, DO, PA, DVM, PharmD, OD) provided by student feedback surveys.

Indirect Measure

A survey that is sent to alumni at 10 months post-graduation. The Assessment Coordinator summarizes the data for all survey items and distributes to faculty. This report is used to measure all program goals.

Program Improvement

1. Data from the post-assessment exam are reviewed annually and discussed among full- and part-time CDS faculty to identify actions for program change.
2. Student completed course evaluations are reviewed by individual faculty members and the program coordinator. This is meant to help inform instructors of their teaching methodology/delivery.
3. Surveys to alumni at 10 months post program completion and collected by the assessment coordinator. The Assessment Coordinator summarizes the data for all survey items and distributes to faculty.
4. Curriculum review meeting to assess data compiled from the assessment coordinator to identify actions for program change.

John T. Waugh, MS, MT(ASCP)
1658 Squirrel Valley Drive
Bloomfield Hills, MI 48304

April 19, 2021

Dale Telgenhoff, PhD, MBA, C[CM]HTL(ASCP)[CM]
Associate Professor and Graduate Coordinator
School of Health Sciences, Oakland University
433 Meadow Brook Road
Rochester, MI 48309-4452

Dear Dr. Telgenhoff,

It is my pleasure to write in support of a new master's degree program in Clinical and Diagnostic Sciences. During the COVID pandemic we continue to see the importance of clinical and diagnostic services to detect and manage the care of people in our communities. This requires leaders who can plan, procure, implement, teach, advise effectively, and leverage molecular diagnostics as a fast-emerging technology.

There is a worrisome workforce shortage in the clinical and diagnostic sciences. With competing career options and retirements, the field is shrinking. This comes at a time when our overall population is aging and there is a need for healthcare services. We also see the aggregation of community hospitals into large integrated delivery networks (IDNs). This is happening across North America and it will continue as a way to achieve economies of scale. The resulting IDNs are larger and more complex, requiring leaders who have the capabilities to function at a higher level. Healthcare continues to be one of the top employers at the state and national level.

With its impressive School of Health Sciences, Oakland University is uniquely positioned to launch and support this new graduate program. OU facilities are state of the art, there is a forward-looking curriculum, and well-prepared faculty. Remote learning options extend the classroom across the country and across the world, where there is a need for CDS preparation at the master's level. The program design offering three tracks will appeal to a broad audience of candidates. I will offer to help with recruiting.

Respectfully,

John Waugh, System Vice President, Pathology and Laboratory Medicine, Henry Ford Health System
Proud member, School of Health Sciences Board of Advocacy and Resource Development

OAKLAND UNIVERSITY
SCHOOL OF HEALTH SCIENCES

October 14, 2021

RE: Support of Master of Science degree in Clinical and Diagnostic Sciences

Dear Faculty Committees,

I write with great appreciation, and enthusiastic support, for the proposed Master of Science (MS) degree in Clinical and Diagnostic Sciences (CDS). I am pleased to thank Dr. Dale Telgenhoff, CDS Chair Person Dr. Sumi Dinda, as well as SHS Assistant Dean, Maria Ebner-Smith for their careful efforts to bring together this innovative plan.

The new MS in CDS degree is distinctively designed to help students with clinical professional interests in applications of human biology, chemistry, biochemistry, genetics, pharmacology – to achieve their academic, research and career goals.

This distinctiveness is well earned given the careful consideration to incorporate the needs of three categories of scientifically accomplished students.

First, OU students earning the bachelors' degree in Medical Laboratory Science, will be better served both professionally and academically by enrolling in and completing this new MS degree. Until now, formal academic benefit was not accrued by completing professionally required post-bac clinical experiences in hospital settings. In contrast, this distinct track will provide cost and time-efficiency. Credit will be recognized for this advanced practice knowledge, and then these experienced graduate students will be engaged in professionally reflective and enriching coursework, as they earn their MS degree.

The Second track, will extend this concept to relatively recent MLS graduates, who already are out in professional practice. Academically and professionally qualified student enrollees will be engaged with peers in the same professionally reflective experiences, while also choosing desired coursework aimed specifically at providing opportunity to develop career-advancing health care management, leadership and organizational skills.

Finally, the Third track, rounds out the distinct offerings to also provide a broad array of advanced academic and practice-focused courses, to research-minded graduates from natural sciences fields. These graduate students will engage in clinically-relevant research questions alongside our faculty.

Summarily, what is most intriguing of all, is that this program proposal by Drs. Telgenhoff, Dinda and colleagues is designed to provide such distinct opportunities, all within the same graduate student community. It is a pleasure to recommend this program, and SHS looks forward to welcoming and supporting the MS in CDS.

Sincerely,

Kevin Ball, PhD
Dean, School of Health Sciences

OAKLAND
UNIVERSITY.

Oakland University

Graduate Council
Appendix I – Survey Data

A survey was created in January 2021 using the Qualtrics Survey System and contact data from the CDS department of current and former students. The results of the surveys are as follows:

Respondents:

Current students (MLS) – 96 responses
Alumni (MLS) – 18 responses

Information collected:

Demographics (graduation, current employment)
Opinions on Master's Degree in CDS
4+1 option for students
Alumni impressions of benefit

The questions and data collected from the survey are presented below:

A. Current Students

Question 1. When will you complete the OU CDS Program?

1-3 Months	15
3-6 Months	5
6-12 Months	12
1-2 Years	39
>2 years	18
Prefer not to say	7

Question 2. If you could complete your MLS clinical rotation while taking additional coursework to complete a Master's degree, how likely will you be to select this option?

Extremely likely	56
Somewhat likely	35
Neither likely nor unlikely	2
Somewhat unlikely	2
Extremely unlikely	1

Question 3. If you chose the Master's degree route, how likely would you be to take 12 credits during your senior year at the graduate level?

Extremely likely	60
Somewhat likely	27
Neither likely nor unlikely	6

Somewhat unlikely	1
Extremely unlikely	2

Question 4. If you were able to complete a Master's degree during your MLS rotation, how likely would you be to pay for an additional 18 credit hours towards a Master's?

Extremely likely	40
Somewhat likely	31
Neither likely nor unlikely	14
Somewhat unlikely	9
Extremely unlikely	2

Question 5. If you were able to complete a Master's degree during your MLS rotation, how likely would you be to do extra coursework during your rotation?

Extremely likely	40
Somewhat likely	40
Neither likely nor unlikely	11
Somewhat unlikely	3
Extremely unlikely	2

Question 6. Is there anything else you feel we should know about the possibility of completing your Master's degree in CDS?

Open form responses:
This is a great opportunity! I only wish it was offered earlier

I think it would be a great option. I think that the option to enroll in the program should be available not just to incoming students but also to any student who will be able to complete the courses on time even if they didn't enroll in it their very first semester at OU.

I was planning to complete a Master's degree in MLS at another university, but if OU starts offering students this opportunity -with providing the means and support to complete both degrees in the same timeframe- I would prefer OU over other universities.

If I am given the opportunity to complete the Masters in MLS without having to go beyond my estimated date of rotation completion, I would most certainly take part in the degree program.

This would be an awesome idea, as my future plan was to get a masters in this field.
it requires a lot of time and money that, isn't available during clinical rotations.

I would like to start it as soon as possible. I need a help finding a research project. preferably COVID-19

Due be aware that the honors college requires a research project to graduate while this seems like a great opportunity make sure you arnt putting too much work on an individual HC student
I am graduating in Winter 2022, so I assume that this option will not be available for Fall 2021/Winter2022 seniors. It makes me sad because I would have loved to graduate/finish my internship with a master's degree. I plan to get a master's degree after my internship and working for a few years, and that would have eliminated 2 more years of schooling I will have to take in my future.

I believe this is progress for OU, if we put aside education and look at cost, OU will be drastically reduced the cost most students spend to go back and get their masters

I hope this would be available for us "junior students" because for me I would like to be able to start working on this master program so when I am done with my clinical rotations I will be done with this program too. Also because I am looking to apply to a graduate school when I am done with my clinical rotation so this would be so much helpful for my career.

Sounds awesome.

I 100% support OU offering this awesome opportunity. If this had been available to me I would have taken advantage of this without a doubt. Will there be a track that is not 4 + 1? For example would a student who is already graduated with a bachelor's degree have a CDS Master's track available at OU?
I love the idea of getting a masters degree during internship but I am concerned about the workload and if it even doable. I would need more info on the courses/research project to see if it's possible to do during rotations/Internship.

no, i would like this option although

My biggest concern is how the coursework will be balanced with the clinical rotations and research project without compromising the quality of either assignment, as well as cost

I'm interested in it, but I'm unsure due to it being a new idea. I would definitely appreciate the option of doing either the masters or bachelors.

Having a detailed breakdown of the tentative masters degree plan and course schedule would be greatly appreciated. I am definitely interested in the option to get a Masters degree in the same amount of time it takes to get my BS

PhD programs wants a stronger research background, with publishable results, will it help future students accomplish that?

How easy would it be for us to switch into the masters program in our junior year? Would we be too late/have taken the wrong classes in order to graduate on time?

B. CDS Alumni

Question 1. When did you complete the OU CDS Program?

1-3 Months ago	1
3-6 Months ago	1
6-12 Months ago	2
1-2 Years ago	5
>2 years ago	9
Prefer not to say	0

Question 2. What is your current status?

MLS	9
Hospital Lab (Not MLS)	0
Graduate School	1
Professional School (MD, DO, PA, DDS, Other)	4
Other	3

Other: Optometry degree (1), HTL (1)

Question 3. What is your current employment status?

Working in MLS field	8
Working in closely related field	4
Working in other field	3
Not currently working	2

Question 4. If additional time and coursework during your clinical rotation would have allowed you to complete a Master's degree, how likely would you have been to select this option?

Extremely likely	9
Somewhat likely	6
Neither likely nor unlikely	0
Somewhat unlikely	2
Extremely unlikely	0

Question 5. How likely would you have been to pay for an additional 18 credit hours towards a Master's degree during your clinical rotation?

Extremely likely	7
Somewhat likely	3
Neither likely nor unlikely	4
Somewhat unlikely	1
Extremely unlikely	2

Question 6. In your current position, would having a Master's degree be of benefit in any of the following (select all that apply):

Higher pay	1
Greater advancement opportunity	10
More responsibility	0
Increased supervisory role	1
Other:	4

Other: I don't think it would really give me any opportunity other than maybe being able to teach (1)

None (1), none of the above (1)

Question 7. Is there anything else you feel we should know about the program or your experiences in the program, at your clinical sites, or in your career that would be a factor in your decision to pursue a Master's in CDS-MLS?

Open form responses:

You may have more interest in an online MLS to Masters program as Im surr graduates that have been in the field for a few years are more financially secure.

I graduated in 2012. I perused a master's degree in Lab Management from Rush University in 2015. In respectable labs, a masters will benefit you, but you don't "need" one to be a supervisor. I did not get an increase in pay. I'm currently working in a reference laboratory. Not necessarily, using my Master's, but earning more beneficial experience.

It would have been difficult to take coursework during my clinical rotation. I also don't believe the hospital has the staff or resources available for clinical projects especially, with the huge shortages of Technologists occurring these days, so something else would need to be worked out.

Appendix J – New Program Flyer

Attention Medical Laboratory Science Students

Would you like to begin your Master's Degree while working on your Bachelor's Degree?

Enroll in the 4+1 Master's Degree Program at Oakland University!

1. Complete up to four of your graduate-level courses during your senior year in the traditional bachelor's program (These courses are already required for the MLS program)
2. Successfully finish your clinical rotation and ASCP Generalist Certification
3. Complete 1 year of CDS Graduate courses and electives to complete the Master's Degree in MLS!

1. See your MLS Program Director or CDS Graduate Coordinator for additional details.
2. Complete an online application Graduate School 4+1 Application in your junior year.
   A. Submit application online
   B. Submit official transcripts from all undergraduate institutions attended
   C. Submit two letters of recommendation

SBRC Proforma Template

FY2020

Most Likely Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program (4+1)		11	13	17	20	25
Est. New Students to Program (Traditional)		5	7	9	11	13
1st Year Cohort Revenue		$ 62,550	$ 227,682			
2nd Year Cohort Revenue		$ -	$ 87,570	$ 282,726		
3rd Year Cohort Revenue		$ -	$ -	$ 112,590	$ 367,794	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ 137,610	$ 600,480
Gross Tuition Revenue		$ 62,550	$ 315,252	$ 395,316	$ 505,404	$ 600,480
Less: Avg UG Financial Aid (30%)		$ -	$ -	$ -	$ -	$ -
Net Tuition Revenue		**$ 62,550**	**$ 315,252**	**$ 395,316**	**$ 505,404**	**$ 600,480**
Expenses						
Salaries						
Faculty Salaries	6101				$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311	$ -	$ -	$ 16,640	$ 24,960	$ 33,280
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 22,856**	**$ 104,176**	**$ 112,496**
Fringe Benefits	6701	$ 497	$ 497	$ 1,828	$ 33,373	$ 34,039
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 24,684**	**$ 137,549**	**$ 146,535**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 36,984	$ 55,476	$ 73,968
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 82,812	$ 92,200	$ 114,606
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 107,496**	**$ 229,749**	**$ 261,141**
Net Income (Loss)		**$ 20,633**	**$ 266,823**	**$ 287,820**	**$ 275,655**	**$ 339,339**

[1]The tuition calculations do not account for any attrition of students.

SBRC Proforma Template FY2020

Best-Case Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program (4+1)		15	17	20	25	30
Est. New Students to Program (Traditional)		8	11	14	17	20
1st Year Cohort Revenue		$ 62,550	$ 325,260			
2nd Year Cohort Revenue		$ -	$ 137,610	$ 392,814		
3rd Year Cohort Revenue		$ -	$ -	$ 175,140	$ 475,380	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ 212,670	$ 838,170
Gross Tuition Revenue		$ 62,550	$ 462,870	$ 567,954	$ 688,050	$ 838,170
Less: Avg UG Financial Aid (30%)		$ -	$ -	$ -	$ -	$ -
Net Tuition Revenue		**$ 62,550**	**$ 462,870**	**$ 567,954**	**$ 688,050**	**$ 838,170**
Expenses						
Salaries						
Faculty Salaries	6101				$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311	$ -	$ -	$ 16,640	$ 24,960	$ 33,280
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 22,856**	**$ 104,176**	**$ 112,496**
Fringe Benefits	6701	$ 497	$ 497	$ 1,828	$ 33,373	$ 34,039
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 24,684**	**$ 137,549**	**$ 146,535**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 36,984	$ 55,476	$ 73,968
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 82,812	$ 92,200	$ 114,606
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 107,496**	**$ 229,749**	**$ 261,141**
Net Income (Loss)		**$ 20,633**	**$ 414,441**	**$ 460,458**	**$ 458,301**	**$ 577,029**

[1]The tuition calculations do not account for any attrition of students.

SBRC Proforma Template

FY2023

Worst-Case Scenario

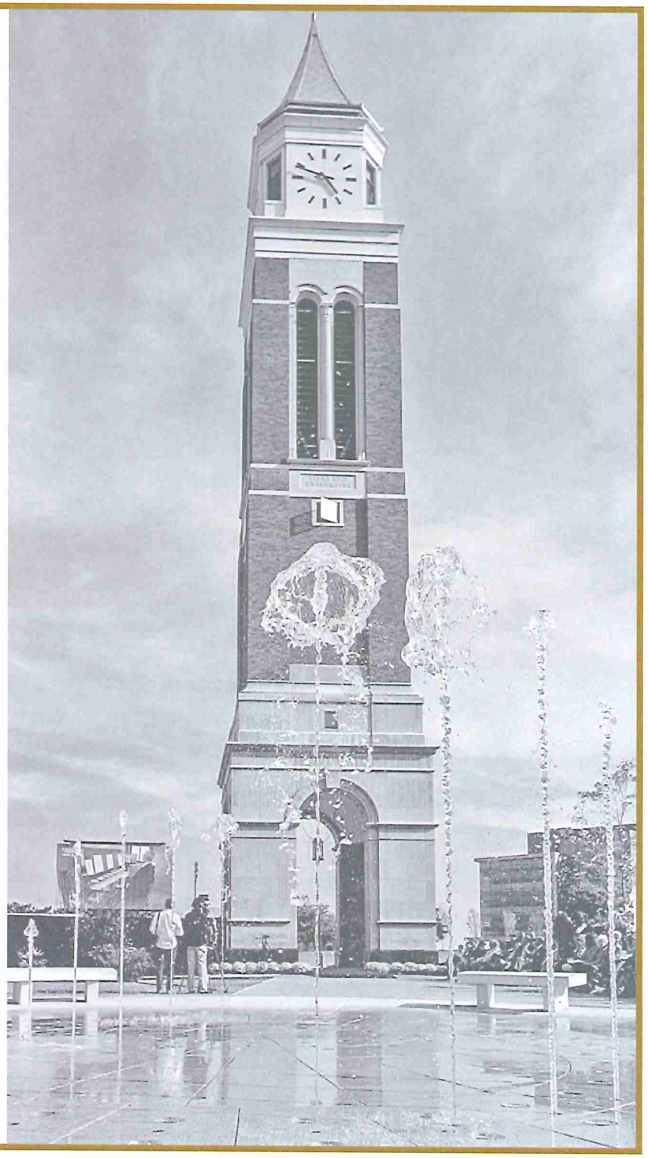
		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program (4+1)		5	6	7	8	9
Est. New Students to Program (Traditional)		3	5	6	8	9
1st Year Cohort Revenue		$ 62,550	$ 112,590			
2nd Year Cohort Revenue		$ -	$ 62,550	$ 152,622		
3rd Year Cohort Revenue		$ -	$ -	$ 75,060	$ 180,144	$ -
4th Year Cohort Revenue		$ -	$ -	$ -	$ 100,080	$ 332,766
Gross Tuition Revenue		$ 62,550	$ 175,140	$ 227,682	$ 280,224	$ 332,766
Less: Avg UG Financial Aid (30%)		$ -	$ -	$ -	$ -	$ -
Net Tuition Revenue		**$ 62,550**	**$ 175,140**	**$ 227,682**	**$ 280,224**	**$ 332,766**
Expenses						
Salaries						
Faculty Salaries	6101				$ 73,000	$ 73,000
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211					
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301					
Part-Time Faculty	6301	$ 6,216	$ 6,216	$ 6,216	$ 6,216	$ 6,216
Graduate Assistant	6311	$ -	$ -	$ 16,640	$ 24,960	$ 33,280
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 6,216**	**$ 6,216**	**$ 22,856**	**$ 104,176**	**$ 112,496**
Fringe Benefits	6701	$ 497	$ 497	$ 1,828	$ 33,373	$ 34,039
Total Compensation		**$ 6,713**	**$ 6,713**	**$ 24,684**	**$ 137,549**	**$ 146,535**
Operating Expenses						
Supplies and Services	7101	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Graduate Tuition	7101	$ -	$ -	$ 36,984	$ 55,476	$ 73,968
E-Learning Support	7102					
Travel	7201	$ 900	$ 900	$ 900	$ 900	$ 900
Equipment	7501			$ 2,500		$ 2,500
Maintenance	7110					
Recruitment and advertising	7101		$ 5,000	$ 5,000	$ 5,000	$ 5,000
Library	7401	$ 24,304	$ 25,816	$ 27,428	$ 20,824	$ 22,238
Total Operating Expenses		$ 35,204	$ 41,716	$ 82,812	$ 92,200	$ 114,606
Total Expenses		**$ 41,917**	**$ 48,429**	**$ 107,496**	**$ 229,749**	**$ 261,141**
Net Income (Loss)		**$ 20,633**	**$ 126,711**	**$ 120,186**	**$ 50,475**	**$ 71,625**

[1]The tuition calculations do not account for any attrition of students.

Master of Science in Clinical and Diagnostic Sciences

Dale Telgenhoff, PhD, MBA, HTL(ASCP)
and Sumit Dinda, PhD, NRP, IC (EMS)

OAKLAND UNIVERSITY



M.S. in CDS

- Non-thesis M.S. in Clinical and Diagnostic Sciences, can be completed 100% online
  - Target student – Working professionals in Clinical and Diagnostic Sciences
- Purpose - encourage healthcare professionals to obtain additional training and develop critical thinking skills in order to advance in their profession
- The School of Health Sciences mission is to provide an exceptional environment of collaborative, academic and clinical learning that helps transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices. The M.S. in CDS accomplishes this mission by preparing students to further their scientific career, preparing them for leadership roles in their chosen profession.

M.S. in CDS

- CDS Master's Degree containing three tracks
  - Track 1: 4+1 Medical Laboratory Science
  - Track 2: Research in Medical Laboratory Science
  - Track 3: Professional Development
- Career Outlook
  - Administration/Management
  - Advanced Practice Specialist
  - Educator
  - Lead Technical Specialist
  - Technical Supervisor
  - Diplomat in Laboratory Management, DLM(ASCP)

Degree Options

MS IN CLINICAL AND DIAGNOSTIC SCIENCES DEGREE
Traditional Program

		credits	delivery	new
PREREQUISTES				-
	BIOLOGY I			-
	PHYSIOLOGY			-
	MICROBIOLOGY			-
	COLLEGE ALGEBRA			-
CORE	**8 CREDITS**			
CDS 6300	Molecular and Cellular Pathology	3	100	new
PH 5410	Statistical Methods in Public Health	3	75	
PH 5411	Statistical Methods in Public Health Lab	1		
CDS 5200	Literature Review	1	100	new
ELECTIVES*	**19 CREDITS**	**19**		
CDS 4000/5000	Medical Genetics (4)			
CDS 4020/5020	Molecular Diagnostics (3)		0	new
CDS 4050/5050	Pharmacology (3)		75	
CDS 4240/5240	Immunohematology (3)		0	new
CDS 4250/5250	Medical Biochemistry (4)			
CDS 4350/5350	Clinical Parasitology, Mycology, Virology (3)		0	new
CDS 4400/5400	Clinical Correlations (3)		0	new
CDS 5900	Special Topics (1-4cr) – maximum 4crs	1	100	
CDS 6200	Laboratory Management (3)	3	100	new
BIO 4622/5622	Endocrinology (4)		100	
EXS 4600/5600	Health and Disease (2)		100	
EXS 5000	Introduction to Research (4)			
CAPSTONE				
CDS 6000	CDS Capstone Research Project - OR- Problem Based Project	3	100	new
	Degree credit requirements	**30**		

MS IN CLINICAL AND DIAGNOSTIC SCIENCES DEGREE
Concentration in Professional Development

PREREQUISITE

The Professional Development concentration for students with a previous MLS certification or certification in a related field consists of courses designed to assist the healthcare professional in progressing into management or education in their current profession.

		credits	delivery
CORE	**8 CREDITS**		
CDS 6300	Molecular and Cellular Pathology	3	100
PH 5410	Statistical Methods in Public Health	3	75
PH 5411	Statistical Methods in Public Health Lab	1	
CDS 5200	Literature Review	1	100
CONCENTRATION*	**13 CREDITS – Professional Development**		
CDS 6200	Laboratory Management	3	100
PA 5100	Foundations of Public Administration	3	100
ORG 5300	Organizational Behavior	3	100
PH 5700	Health Policy and Management	4	100
ELECTIVES	**6 CREDITS**	9	
EXS 5600	Health and Disease (2)		
EL 6300	Theories and Techniques of Leadership (4)		
PA 5500	Nonprofit Organization and Management (4)		
PH 5000	Foundations Health Behavior and Health Edu (4)		
PH 5650	Social Determinants of Health (4)		
PH 5500	Introduction to Epidemiology (4)		
HRD 6801	Introduction and Theories of Lean Leadership I (4)		
HRD 6950	Lean Leadership Internship I (2)		
CAPSTONE			
CDS 6000	CDS Capstone	3	100
	Research Project – OR- Problem Based Project		
	Degree credit requirements	**30**	

MS IN CLINICAL AND DIAGNOSTIC SCIENCES DEGREE
Combined Bachelor's/Master's Program Traditional Program

		credits	delivery	new
CORE	**8 CREDITS**			
CDS 6300	Molecular and Cellular Pathology	3	100	new
PH 5410	Statistical Methods in Public Health	3	75	
PH 5411	Statistical Methods in Public Health Lab	1		
CDS 5200	Literature Review	1	100	new
				-
UG/GR COURSES	**12 CREDITS**			
CDS 4240/5240	Immunohematology	3	0	new
CDS 4020/5020	Molecular Diagnostics	3	0	new
CDS 4350/5350	Clinical Parasitology, Mycology, Virology	3	0	new
CDS 4400/5400	Clinical Correlations	3	0	new
ELECTIVES*	**7 CREDITS**	7		
CDS 4000/5000	Medical Genetics (4)			
CDS 4050/5050	Pharmacology (3)		75	
CDS 4250/5250	Medical Biochemistry (4)			
CDS 5900	Special Topics (1-4cr) – maximum 4	1	100	
CDS 6200	Laboratory Management	3	100	
BIO 4622/5622	Endocrinology (4)		100	
EXS 4600/5600	Health and Disease (2)		100	
EXS 5000	Introduction to Research (4)			
CAPSTONE				
CDS 6000	CDS Capstone Research Project - OR- Problem Based Project	3	100	new
	Degree credit requirements	**30**		