

**American Society for Clinical Pathology Board of Certification Exam First Time Pass Rates:
 A Comparison between Clinical Laboratory Science
 Distance (Online) and Traditional (Face-to-Face) Programs**
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Abstract

The Texas Tech University Health Sciences Center School of Health Professions, in 2007, sought to increase enrollment in the Clinical Laboratory Science program by developing an online Clinical Laboratory Science program for those individuals who held earned Bachelor's degrees in a science field (biology, chemistry, microbiology, biochemistry, etc.). Since 2010, the program received approximately 125 applications and accepted an average of 41 students annually. The last admissions cycle experienced its largest numbers to date, 389 applicants with 80 accepted. Participants in this presentation will be able to compare the pass rate for the different learning platforms. Data was collected using American Society for Clinical Pathology (ASCP) first time pass rates for both the traditional (face-to-face) program and the distance (online) program starting the class of 2010, the first distance (online) cohort. The purpose of this study was to compare the success of both programs utilizing the Board of Certification (BOC) first time pass-rate. It was determined that the average overall pass-rates were 93% for the online cohort and 91% for the traditional cohort. Based on these findings, the distance (online) program appeared just as successful as their traditional (face-to-face) student counterparts.

INTRODUCTION

The TTUHSC Clinical Laboratory Science Program wanted to develop an online distance education CLS program that delivered the required academic content and fundamental laboratory practices while producing positive student learning outcomes. Positive outcomes can be interpreted in many ways, and the "success" of a student is a subjective perspective. In the current assessment, a positive outcome was considered to be a first-time passing score on the ASCP Board of Certification (BOC) exam.

When the program was first designed, a number of areas were examined including a market analysis of the available online distance education programs in the area, what types of programs these were, what kind of students were accepted, how was content delivered and what were the clinical education requirements. It was eventually determined that a specific demographic would be sought out: those students with at least a Bachelor's degree in a science field, as opposed to limiting acceptance for example to those who held an MLT. For content delivery, a user-friendly software platform that still conformed to TTUHSC requirements had to be found. All aspects of the program had to comply with NACCLS program accreditation guidelines.

Of greatest importance in formulating an online curriculum is the preparation of quality instruction by following best practices to ensure a high quality of education. This includes instruction presented in the clinical realm using preceptorship sites to provide a true clinical experience. A robust rubric was used in the planning and evaluation of the distance education courses, following best practices guidelines endorsed by the Texas Higher Education Coordinating Board. To determine if the development of the distance education CLS program met the program goals, the outcome measure used was the ASCP's BOC exam scores attained by the distance education students and compared to those students who received a traditional classroom CLS education.



CURRICULUM

One focus of program development was to include in-state students that had already been exposed to the Texas Common Core Requirements for baccalaureate degrees. In addition to these, a number of science prerequisites were added (Table 1). These prerequisites are the same as those required of the traditional classroom CLS students. For students interested in the learning certificate program, the Texas Common Core Requirements were not required. The distance education CLS curriculum (Table 1) is obviously much different than the 2+2 traditional program because of the brevity of the online program (12 months). A great deal of information has to be condensed into a short amount of time while continuing to comply with NACCLS requirements.

Table 1

Online Second Degree Prerequisites **

Courses	Credit Hours
Texas Common Core Requirements (http://www.ttuhscc.edu/shp/cls/2ndpostbac_prereqs.aspx)	
Biological Sciences*	12
Basic Chemistry*	8
Organic Chemistry*	4
Microbiology*	4
Statistics	3

* Courses with remedial/lat requirements

Online CLS Curriculum

Fall Semester	Credit Hours
Foundations of Hemastasis	3
Foundations of Clinical Chemistry	3
Foundations of Clinical Microbiology	3
Clinical Laboratory Practice I	4
Total Hours	13

Spring Semester	Credit Hours
Advance Hematology	2
Analysis of Body Fluids	1
Principles of Molecular Diagnostics	1
Advance Microbiology	1
Clinical Immunology	1
Foundations of Immunohematology	3
Clinical Laboratory Practice II	4
Total Hours	13

Summer Semester	Credit Hours
Preceptorship	7
Principles of Laboratory Management	1
Seminar	1
Total Hours	13
Curriculum Total	35

**Prerequisites for the learning certificate students do not include the Texas Common Core Requirements

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OUTCOMES

Table 2. ASCP BOC Exam First Time Pass Rate Results: Online Distance Education CLS Program

Year	Pass Rate
2010	100% n= 6
2011	88% n= 9
2012	94% n= 30
2013	91% n= 34
2014	90% n= 31
2015	96.8% n= 31

Table 3. Comparison of Online Distance CLS Program and Traditional 2+2 Classroom Program Pass Rate Results

Year	Online	Traditional
2010	100%	100%
2011	88%	96%
2012	94%	94%
2013	91%	83%
2014	90%	91%
2015	98.6%	84%

CONCLUSIONS

The success of the TTUHSC distance education CLS program has made it an asset to the department and serves to help aspiring students obtain their ASCP certification. In an evaluation of the program, it was observed that the BOC pass rate tends to be equal to or higher than that of the Traditional CLS students. There could be many reasons for this. It could be attributed to the fact that 125 online applications were received compared to only 27 traditional student applications in 2015. This equals 21.6% more applications to the online program than the traditional program. With a low acceptance of 40-50 students, the increased number of applications allows us to implement a more stringent admissions process where students that were granted admittance averaged a 3.42 overall GPA and 3.54 science GPA. This is higher than the 3.2 GPA average seen with the traditional student admittance for both categories. Student surveys indicate the sizeable number of applications can be credited to the appeal of attending a one-year online program, which is seen as an efficient, cost effective way of not only achieving a second Bachelor's degree but also gaining qualification to take the BOC exam. In addition, approximately 25% of the online students enter the program with some laboratory background. The non-traditional, mature, self-directed learning, and highly motivated demographic of the online students may also contribute to the increased success. In conclusion, the TTUHSC CLS online students exhibit positive student learning outcome.

Future Endeavors

- A comparison of comprehensive examinations scores to ASCP BOC scores for each cohort.
- The continued implementation of online lab resources such as videos of experimental procedures and techniques using Camtasia software. These will be used by students alongside lab workbooks to improve student comprehension and preparation for the hands-on lab practice week.

