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Forensic Science as an Elective Course in Medical Laboratory Science: A Basis for Curriculum Integration and Innovation

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A B S T R A C T

The continuous enrichment of the curriculum is essential to ensure that students are provided with a dynamic, relevant, and high-quality learning experience that is responsive to evolving academic standards, industry demands, and societal needs. This study aimed to explore the integration of forensic science as an elective course in the Bachelor of Science in Medical Laboratory Science (BS MT/MLS) curriculum, focusing on its relevance, acceptability, and potential benefits to student competencies and career opportunities. A mixed-method sequential explanatory design was utilized to gather data through survey questionnaires and interviews with administrators (deans/program heads), faculty, students, and alumni from CHED-accredited institutions. Results showed that stakeholders perceived forensic science as relevant to medical laboratory science. They viewed its integration to enrich the curriculum, promote interdisciplinary learning, and expand career opportunities. Participants expressed general acceptance of including forensic science, emphasizing its alignment with emerging trends in healthcare and forensic investigation. Interview findings pointed to the importance of faculty training, resource availability, and administrative support for successful implementation. The study concluded that integrating forensic science could serve as a curriculum innovation that enhances educational quality and graduate readiness. It is recommended that higher education institutions review their curriculum frameworks and implement strategic integration of forensic science, including partnerships with forensic experts and institutions to provide practical, hands-on learning experiences.

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INTRODUCTION

Medical Technology (MT), also referred to as Medical Laboratory Science (MLS), is a highly specialized field in healthcare that applies scientific principles, laboratory techniques, and technological innovations to perform diagnostic tests vital to patient care. MLS professionals play a central role in the detection, monitoring, treatment, and prevention of diseases, as their outputs directly influence clinical decision-making and public health outcomes (CHED, 2017).

Given this responsibility, ensuring the accuracy, reliability, and timeliness of laboratory results is paramount.

In the Philippines, the Commission on Higher Education (CHED) regulates the academic and professional training of MT/MLS practitioners through CHED Memorandum Order (CMO) No. 13, series of 2017. The memorandum outlines the core competencies expected of MLS graduates, including proficiency in diagnostic testing, laboratory management, quality assurance, and research. These competencies are delivered through a curriculum encompassing fields such as clinical chemistry, clinical microscopy, hematology, microbiology, serology and immunology, transfusion medicine, and histopathology (CHED, 2017).

Clinical chemistry, for example, plays a vital role in detecting metabolic and organ-related disorders through biochemical analyses of bodily fluids (Müller, 2022). Clinical microscopy enables diagnosis of parasitic infections via stool and urine analysis (Ibrahim & Ogunleye, 2020), while hematology focuses on blood cell analysis essential for identifying conditions such as leukemia and anemia (Fletcher et al., 2020). Similarly, microbiology contributes to infection control by identifying pathogenic microorganisms (Madigan et al., 2020), and immunology is integral in diagnosing immune system disorders and monitoring infectious diseases (Murphy & Weaver, 2021).

Over the years, CHED has introduced significant curricular updates, such as extending clinical internships to twelve months and adding co-requisite courses that address emerging trends in the profession, including Medical Technology Assessment and MLS Seminars (CHED, 2017). Electives like Molecular Biology and Laboratory Management have also been introduced to allow students to deepen their expertise in specific areas. One such elective—Forensic Science—has gained increasing relevance as the intersection between medical diagnostics and legal investigations becomes more pronounced (Almazan et al., 2020).

Forensic science, defined as the application of scientific methods to solve legal issues, plays a key role in identifying criminal suspects, analyzing evidence, and exonerating the innocent. With developments in DNA profiling, toxicology, and trace evidence analysis, forensic science has become increasingly reliant on laboratory-based skills that overlap with those taught in MLS programs (Ramirez & Hood, 2020). Techniques used in clinical chemistry, serology, and molecular diagnostics are directly transferable to crime scene analysis and forensic pathology (Almazan et al., 2020).

Despite this synergy, forensic science remains underrepresented in the formal MLS curriculum. Although CHED recognizes that Registered Medical Technologists (RMTs) may serve in forensic roles such as medico-legal investigators and crime laboratory analysts (CHED, 2017), the curriculum does not currently provide systematic training in forensic science. This creates a gap, especially for students aspiring to work in legal medicine, forensic toxicology, or DNA forensics (Williamson et al., 2020).

Moreover, as crime rates and the complexity of forensic cases increase in Southeast Asia, there is a growing demand for professionals who possess both clinical and forensic expertise (Almazan et al., 2020). Experts have called for cross-disciplinary training to bridge this gap and strengthen the forensic capabilities of healthcare systems (Williamson et al., 2020).

This study aims to explore the applicability and relevance of integrating forensic science into the Bachelor of Science in Medical Laboratory Science (BS MT/MLS) curriculum in the Philippines. Specifically, it seeks to determine the perceived level of relevance among administrators, faculty, and clinical practitioners toward the integration of forensic science in the BS MT/MLS curriculum. It also aims to assess the perceived level of acceptability among students and alumni regarding this integration. Furthermore, the study intends to identify the strengths, weaknesses, opportunities, and threats (SWOT) involved in integrating forensic

science into the BS MT/MLS curriculum through a documentary analysis conducted at LORMA Colleges.

METHOD

a. Study Design

The study employed a mixed-method convergent parallel design to comprehensively examine stakeholder perceptions regarding the inclusion of forensic science as an elective course in the Bachelor of Science in Medical Laboratory Science (BS MLS) program. This design enabled the simultaneous collection and analysis of quantitative and qualitative data, allowing for the triangulation and integration of findings to achieve a more robust interpretation of results.

b. Selected Participants

The participants of the study included deans, program heads, faculty members, students, and alumni from Commission on Higher Education (CHED)-accredited institutions across the Philippines. A combination of judgmental and quota sampling techniques was utilized to ensure appropriate representation across stakeholder groups, thereby capturing diverse perspectives relevant to the study objectives.

c. Procedure

Following the identification and selection of participants, ethical considerations were strictly observed throughout the research process. Informed consent was secured prior to participation, and respondents were assured of anonymity, confidentiality, and voluntary participation. Data collection was conducted online through Google Forms to facilitate accessibility and efficient distribution. In addition, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was performed through a documentary review of relevant institutional materials.

d. Data Collection

Data were gathered using two researcher-developed and validated questionnaires. The first instrument assessed the perceived relevance of forensic science as an elective and was administered to administrators and faculty members. The second instrument measured acceptability and was distributed to students and alumni. Content validity testing yielded a mean score of 3.34, interpreted as highly valid. Reliability testing, conducted using Cronbach's Alpha, resulted in a coefficient of 0.7769, indicating moderate reliability.

e. Data Analysis

Quantitative data were analyzed using the R statistical software and RStudio environment to generate descriptive and inferential statistics. Qualitative data, including responses to open-ended questions, were analyzed using NVivo software through thematic analysis to identify recurring patterns and insights. The integration of quantitative and qualitative findings was performed during the interpretation phase to provide a comprehensive understanding of stakeholder perceptions.

RESULT AND DISCUSSION

The study revealed meaningful insights into the perceived relevance and acceptability of integrating forensic science into the BS Medical Laboratory Science (MT/MLS) curriculum. Administrators, faculty members, and industry professionals evaluated the relevance of forensic science, while students and alumni assessed its acceptability.

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Table 1. Relevance of Forensic Science to MT/MLS

Relevance of Forensic to MT/MLS	Mean	Standard Deviation	Verbal Interpretation
R1. Forensic science topics are related to the knowledge and skills required for the professional practice of medical technology/medical laboratory science.	3.44	0.73	Strongly Agree
R2. Incorporating forensic science would make the MT/MLS program more comprehensive and well-rounded.	3.56	0.63	Strongly Agree
R3. The integration of forensic science to the MT/MLS curriculum would enhance students' understanding of practical applications in the field.	3.56	0.63	Strongly Agree
R4. The exposure to forensic science concepts and principles would improve students' critical thinking and problem-solving skills.	3.69	0.48	Strongly Agree
R5. The inclusion of forensic science in the MT/MLS program would make the program more attractive to prospective students.	3.69	0.48	Strongly Agree
R6. The inclusion of forensic science would align with current trends and advancements in the healthcare and legal fields.	3.75	0.45	Strongly Agree
R7. The addition of forensic science to the program would broaden the career opportunities for BS MT/MLS graduates.	3.81	0.40	Strongly Agree
R8. Incorporating forensic science into the MT/MLS program would better prepare students for their future careers.	3.63	0.50	Strongly Agree
Overall Mean	**3.64**	**0.43**	**Strongly Agree**

Table 1 presented the results of the survey conducted among administrators, faculty members, and industry professionals regarding the perceived relevance of forensic science to the BS Medical Technology/Medical Laboratory Science (MT/MLS) curriculum. The overall mean score was 3.64, indicating that respondents strongly agreed that forensic science was highly relevant to the current educational and professional landscape of MT/MLS.

Participants strongly agreed that forensic science topics were related to the knowledge and skills required in professional MT/MLS practice (mean = 3.44). This finding aligned with the idea that forensic science and MLS share core competencies such as laboratory testing, DNA analysis, toxicology, and serological assessments—making integration not only logical but beneficial (Button, 2021; Lehman, 2012; Pfau, 1991; Sheikh Osman, 2023). Respondents also believed that incorporating forensic science would make the program more comprehensive and well-rounded (mean = 3.56), and that it would enhance students' understanding of practical applications in the field (mean = 3.56). These results reflected an appreciation for interdisciplinary learning and the increasing demand for MLS graduates who are equipped for both clinical and forensic roles.

Moreover, the highest-rated items emphasized that forensic science could improve students'

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critical thinking and problem-solving skills (mean = 3.69), and that its inclusion would make the MT/MLS program more attractive to prospective students (mean = 3.69). This supported the idea that students could develop deeper analytical abilities and broaden their academic engagement through exposure to real-world forensic scenarios (Bisbing, 2022; Buschmann, 2025). Respondents also noted that forensic science aligned well with current trends and advancements in both healthcare and legal fields (mean = 3.75), reinforcing the notion that the elective would not be outdated or redundant, but instead responsive to societal and industry demands (Nilendu, 2024).

Significantly, the highest mean score (3.81) was recorded for the statement that the addition of forensic science would broaden career opportunities for graduates. This reflected stakeholders' awareness of growing forensic-related job markets, including roles in medico-legal investigation, forensic toxicology, DNA forensics, and even teaching roles in criminology programs. Lastly, respondents strongly agreed that integrating forensic science would help better prepare students for their future careers (mean = 3.63), implying that the knowledge and skills provided through this elective would translate into more competent, adaptable, and employable graduates (Kloosterman et al., 2015). Collectively, the responses in Table 1 demonstrated a robust endorsement of forensic science as a relevant and strategic addition to the MT/MLS curriculum. The high level of agreement across all items reflected a strong alignment between stakeholder expectations and the envisioned benefits of curriculum innovation through forensic science integration.

Table 2. Acceptability of Students Towards the Integration of Forensic Science to MT/MLS

Acceptability of stakeholders in integrating forensics to the MT/MLS curriculum	Mean	Standard Deviation	Verbal Interpretation
A1. I am amenable to taking additional units for forensic science.	2.94	0.97	Agree
A2. I believe that forensic science and medical technology/medical laboratory science topics are closely related with one another.	3.27	0.70	Strongly Agree
A3. I believe that adding forensic science to the program would enhance my understanding of practical applications in the field and supplement the learnings from my other MT/MLS courses.	3.16	0.90	Agree
A4. I believe that incorporating forensic science would make the BS MLS program of the institution more unique, comprehensive, and well-rounded.	3.12	0.89	Agree
A5. I am interested in learning about the techniques and applications of forensic science within the MLS program.	3.35	0.77	Strongly Agree
A6. I do not worry that integration of forensic science to the MLS program will overcomplicate the program.	2.67	0.91	Agree
A7. The addition of forensic science to the program would broaden my career opportunities in the future.	3.29	0.86	Strongly Agree
A8. I believe that integrating forensic science into the	3.14	0.85	Agree

program would better prepare me for my future career as an MT/MLS professional.			
Overall Mean	**3.12**	**0.71**	**Agree**

This table presented the perceptions of students and alumni regarding the acceptability of integrating forensic science into the BS MT/MLS curriculum. The results showed that the overall mean score was 3.12, indicating general agreement. Respondents strongly agreed that they were interested in learning about forensic science techniques and applications (mean = 3.35) and believed that its inclusion would broaden their career opportunities (mean = 3.29). These findings suggested that forensic science was perceived not only as a relevant and engaging subject but also as one with practical value for future professional endeavors (Scanlan, 2013). Additionally, participants agreed that the integration would enhance their understanding of practical applications and supplement their learning from other MT/MLS courses (mean = 3.16) (Webmaster, 2021), and that it would contribute to a more comprehensive and well-rounded curriculum (mean = 3.12).

Although respondents showed moderate agreement in terms of being amenable to taking additional units for forensic science (mean = 2.94), they did not express concern that the integration would overcomplicate the existing program (mean = 2.67). This implied a general openness to curricular expansion, if it was thoughtfully implemented. These findings reinforced the importance of aligning curriculum innovations with student interests and expectations, and demonstrated a readiness among learners to embrace interdisciplinary learning experiences that can enhance both academic engagement and employability (Francisco, 2023; Funkhouser & Deslich, 2020; Galante et al., 2023; Mishra & Singh, 2024; Pandey & Roy, 2024).

Table 3. SWOT Analysis through Documentary Review on the Integration of Forensic Science into the BS MT/MLS Curriculum at LORMA Colleges

Strengths	1. The LORMA Colleges is one of the premier top MT/MLS schools in Region 1 with competitive licensure examination performance, and remains to be the only MT/MLS school in the province of La Union 2. Well-grounded institutional and departmental mission, vision, goals, and objectives and strong support from the school administration 3. Annual constant increase in enrollees in the BS MLS program of the College 4. Well-grounded and implemented retention and attrition policy of the College of Medical Laboratory Science and the institution at large 5. Strong networking and partnership with other educational institutions and industries 6. Strong financial capital of the College being one of the top earners of the institution 7. Graduate tracer studies show several graduates' involvement in forensic science
Weakness	1. Limited existing faculty members with training, expertise, background, and educational qualifications in teaching forensic science 2. Additional training or hiring may be needed to offer the elective effectively 3. Limited laboratory infrastructure and material resources for forensic-specific training (such as PCR machine for genetic testing, LC-tandem-MS for drugs of abuse, and crime scene simulation) 4. Little to no developed/prepared course learning materials (such as reference textbooks, syllabus, topic presentations, laboratory manuals) 5. The BS MT/MLS program of the institution remains to be unaccredited
Opportunities	1. Only several MT/MLS schools in the Philippines offer forensic science in their curriculum, making this a unique offering by the institution 2. The field of MT/MLS continues to grow in eminence and popularity, producing more

	prospective and target students to enrol in the program 3. Growing demand for forensic experts in both public and private sectors 4. Potential for collaborations with law enforcement, legal, and forensic institutions 5. Integration can serve as groundwork for a future full forensic science program
Threats	1. Possible overcrowding in the curriculum if not managed properly 2. Possible mismatch between student expectations and course content if not well-structured 3. Competition from institutions with dedicated forensic science programs.

Table 3 presented a SWOT analysis of the potential integration of forensic science into the BS MT/MLS curriculum at LORMA Colleges. The strengths identified included the institution's strong academic performance, particularly in licensure exams, its growing student enrollment, financial stability, and established partnerships with industry and educational institutions. These factors positioned LORMA Colleges well to adopt curricular innovations. Importantly, graduate tracer studies indicated alumni involvement in forensic-related roles, suggesting that student interest in this area was not only theoretical but also practical and career-driven. The weaknesses of integration primarily centered around resource limitations. These included a lack of faculty with formal forensic training, insufficient laboratory infrastructure for specialized forensic procedures (e.g., PCR testing and crime scene simulations), and a shortage of prepared instructional materials. Furthermore, the MT/MLS program at LORMA remained unaccredited, potentially limiting its ability to fully implement and benefit from curricular enhancements.

The opportunities outlined in the analysis were considerable. Few institutions in the Philippines offered forensic science within the MT/MLS curriculum, making it a potential differentiator for LORMA. The growing demand for forensic experts in both public and private sectors, along with the possibility of future collaboration with law enforcement and forensic agencies, underscored the strategic value of integration. Lastly, the initiative could serve as a stepping stone toward establishing a full degree program in forensic science.

Among the threats, the potential for curriculum overload was noted, particularly if integration was not carefully managed. Mismatches between student expectations and actual course content could result in dissatisfaction, and competition from schools offering specialized forensic programs posed an external risk. These threats highlighted the need for a strategic and phased approach to implementation, with clear communication, proper structuring, and resource alignment.

Table 4. Key Insights on Forensic Science Integration in the BS MT/MLS Program

Themes	Description	Responses
Enhanced Career Prospects	Interview data suggests that respondents see the integration of Forensic Science into the BS MLS curriculum to expand graduates' career opportunities. By gaining medico-legal skills and specialized knowledge in areas such as DNA analysis and toxicology, students may become more versatile and competitive for roles in forensic institutions, law enforcement, and uniformed services. These additional competencies are also considered valuable for managing biological evidence in healthcare environments.	R1Q1,R2Q1, R3Q1, R4Q1, R5Q1, R6Q1, R7Q1, R8Q1, R10Q1, R11Q1, R12Q1, R14Q1, R15Q1, R16Q1
Resource Preparedness	Interview responses indicate that institutions differ in their preparedness for implementing the curriculum change. Some	R1Q2, R2Q2,

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Themes	Description	Responses
Levels	acknowledge the need to train or hire qualified forensic science faculty, while others highlight the importance of acquiring appropriate equipment and materials, which may demand additional funding. Universities that already offer related programs may be better equipped, whereas others might need to enhance their infrastructure to support the integration	R3Q2, R5Q2, R6Q2, R8Q2, R9Q2, R10Q2, R11Q2, R12Q2, R13Q2, R14Q2, R15Q2, R16Q2
Leadership Support Vital	Respondents emphasized that strong administrative support is essential for successfully integrating forensic science, including funding, faculty training, access to laboratory equipment, and collaboration with forensic institutions and regulatory bodies.	R2Q3, R3Q3, R5Q3, R6Q3, R7Q3, R8Q3, R10Q3
Curriculum Enrichment Potential	Based on the information collected from interviewees, integrating forensic science is seen as a chance to enrich the MLS curriculum, making it more comprehensive and relevant. This may include adding basic forensic principles and showing how current MLS knowledge can be applied in interdisciplinary contexts. Leveraging available university resources and programs could also improve students' learning experiences.	R4Q1, R6Q1, R8Q1, R9Q1, R10Q1, R12Q1, R13Q1, R15Q1
Acknowledgement of Adoption Challenges	Implementing this curriculum change involves key considerations such as resource allocation, managing overlaps with existing courses, evaluating demand for graduates with this skillset, and ensuring institutions can deliver the program while meeting standards. Cultural factors may also influence its feasibility in different settings.	R4Q2, R6Q2, R9Q2, R15Q2, R16Q2

Table 4 synthesized qualitative responses into five key themes that further contextualized the quantitative findings. The first theme, Enhanced Career Prospects, showed that respondents believed forensic science would increase graduate competitiveness and open doors to new roles in medico-legal fields, forensic laboratories, and uniformed services. This reinforced the quantitative result that students saw forensic science as a value-adding elective.

The second theme, Resource Preparedness Levels, reflected varying levels of institutional readiness. While some institutions acknowledged that they had the foundational structure to begin integration, others emphasized the need for investment in training, materials, and equipment. This disparity suggested that while the interest in integration was strong, actual execution would depend on institutional capacity.

The third theme, Leadership Support Vital, emphasized the critical role of administrative commitment. Respondents believed that leadership must actively support the initiative by allocating budgets, facilitating faculty development, and enabling collaborations with external forensic institutions. This confirmed the idea that strategic planning must be top-down and supported at all levels of administration.

The fourth theme, Curriculum Enrichment Potential, highlighted that respondents viewed forensic science to make the curriculum more comprehensive and relevant. They supported embedding basic forensic principles into existing subjects and promoting interdisciplinary applications, which aligned with modern pedagogical approaches. Lastly, the theme Acknowledgment of Adoption Challenges captured the awareness of practical hurdles, such as resource limitations, curriculum alignment, and institutional culture. These concerns reinforced the need for a phased, data-informed implementation strategy.

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DISCUSSION

The findings of this study reveal a strong consensus among key stakeholders, administrators, faculty, students, and alumni, regarding the relevance and acceptability of integrating forensic science into the Bachelor of Science in Medical Laboratory Science (BS MT/MLS) curriculum. Administrators and faculty members overwhelmingly agreed that forensic science is a relevant addition to the MLS curriculum, as it builds upon existing laboratory competencies such as DNA analysis, toxicology, and serology, which are commonly applied in medico-legal investigations. These stakeholders believe that the integration of forensic science would not only enrich the educational experience but also better prepare graduates for interdisciplinary roles in both healthcare and legal environments.

Students and alumni expressed general acceptance of the proposed integration. They acknowledged that forensic science aligns closely with core MLS topics and would provide valuable practical applications. Furthermore, they recognized that the inclusion of forensic content could increase the attractiveness of the program, enhance critical thinking and problem-solving skills, and broaden future career opportunities in forensic laboratories, law enforcement agencies, and crime scene analysis. Despite concerns regarding potential curriculum overload, respondents indicated interest and willingness to undertake additional units if these offered meaningful educational and professional value.

The SWOT analysis supports these findings, identifying institutional strengths such as administrative support, increasing program enrolment, and strong industry networks. Opportunities lie in the relatively untapped market for forensic education in MLS programs and the growing demand for forensic experts. However, key weaknesses include the lack of forensic-trained faculty and limited laboratory infrastructure, while threats include curriculum crowding and competition from institutions with established forensic science programs. Respondents also emphasized the need for strategic planning, adequate funding, faculty development, and collaboration with forensic institutions to ensure a successful and sustainable integration.

The study is limited by its use of non-probability sampling techniques, which may restrict the generalizability of the findings across all CHED-accredited institutions offering the BS MLS program. Additionally, reliance on self-reported data collected through online questionnaires may introduce response bias and limit the depth of insights compared to in-depth qualitative methods.

Based on the findings, it is recommended that forensic science be strategically integrated into the Bachelor of Science in Medical Laboratory Science (BS MT/MLS) curriculum as an elective course, given its demonstrated relevance and strong acceptance among key stakeholders. Curriculum planners and academic administrators should ensure that its inclusion is carefully structured to complement existing MLS competencies while mitigating potential curriculum overload through appropriate course design and credit allocation. Institutions should invest in faculty development programs to address the current shortage of forensic-trained educators and allocate resources for the improvement of laboratory infrastructure to support practical instruction. Furthermore, establishing partnerships with forensic laboratories, law enforcement agencies, and medico-legal institutions is strongly encouraged to enhance experiential learning opportunities and ensure industry alignment. Continuous curriculum evaluation and stakeholder consultation should also be undertaken to maintain the program's responsiveness to emerging trends and workforce demands, thereby ensuring the sustainability and effectiveness of forensic science integration.

In summary, the integration of forensic science into the MLS curriculum is perceived as both relevant and beneficial, offering significant potential for academic enrichment, skill

development, and career advancement. However, its success depends on institutional readiness, resource allocation, and supportive leadership.

CONCLUSION

The study concludes that there is a high level of perceived relevance and general acceptability of forensic science as an elective in the BS MT/MLS curriculum. Key stakeholders – administrators, faculty, students, and alumni, recognize its potential to enrich academic content, improve practical competencies, and expand employment opportunities in the forensic field. Successful implementation will depend on comprehensive strategic planning that addresses curriculum design, faculty training, resource provision, and institutional support. Institutions are encouraged to benchmark from successful models, involve stakeholders in curriculum development, and establish partnerships with forensic science institutions to enhance hands-on learning experiences.

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REFERENCES

Almazan, J. U., Cruz, J. P., & Tuaño, E. J. (2020). Forensic science education and its role in criminal investigations across Southeast Asia. *Journal of Forensic Sciences, 65*(4), 123–135.

Bisbing, R. E. (2022). The forensics of the night: A closer look at the CSI effect by a forensic microscopist. *The Microscope, 70*(2), 55–64.

Button, L. J. (2021). Curriculum innovations and interdisciplinary course design in higher education. *Journal of Curriculum and Teaching, 10*(3), 45–58.

Commission on Higher Education. (2017). *Policies, standards and guidelines (PSGs) for the Bachelor of Science in Medical Technology or Medical Laboratory Science (BSMT or MLS) program* (CHED Memorandum Order No. 13, Series of 2017).

Buschmann, C. T. (2025). Forensic science topics in medical laboratory science education: Bridging knowledge and practical application. *Forensic Science, Medicine and Pathology, 21*(1), 88–97.

Fletcher, P. S., Wong, L., & Chen, J. P. (2020). Advances in hematology: From basic science to clinical practice. *American Journal of Hematology, 95*(3), 307–315.

Francisco, M. (2023). Expanding BS MLS programs through forensic science integration. *Egyptian Journal of Forensic Sciences, 13*(1), Article 42.

Funkhouser, R., & Deslich, S. (2020). Integration of forensic science in interdisciplinary medical curricula. *Science & Justice, 60*(5), 450–458.

Galante, F., Ross, A., & Miller, K. (2023). Enhancing analytical thinking through forensic science in medical curricula. *Forensic Science International: Synergy, 6*, Article 100312.

Ibrahim, K. I., & Ogunleye, O. S. (2020). Diagnostic applications of clinical microscopy in parasitology: A review. *Journal of Parasitology Research, 2020*, Article 3050142.

Williamson, D. H. Z., Yu, E. X., Hunter, C. M., Kaufman, J. A., Komro, K., Osborne Jelks, N., Johnson, D. A., Gribble, M. O., & Kegler, M. C. (2020). A scoping review of capacity-building efforts to address environmental justice concerns. *International Journal of*

Environmental Research and Public Health, 17(11), Article 3765. https://doi.org/10.3390/ijerph17113765

Kloosterman, A., Mapes, A., Geradts, Z., van Eijk, E., Koper, C., van den Berg, J., Verheij, S., van der Steen, M., & van Asten, A. (2015). The interface between forensic science and technology: How technology could cause a paradigm shift in the role of forensic institutes in the criminal justice system. *Philosophical Transactions of the Royal Society B: Biological Sciences, 370*(1674), Article 20140264. https://doi.org/10.1098/rstb.2014.0264

Lehman, D. C. (2012). Introduction to forensic science. *Clinical Laboratory Science, 25*(2), 107–108. https://doi.org/10.29074/ascls.25.2.107

Madigan, M. T., Bender, K. S., Buckley, D. H., Sattley, W. M., & Stahl, D. A. (2019). *Brock biology of microorganisms* (15th ed.). Pearson.

Mishra, K., & Singh, A. (2024). The role of forensic science in modern medical laboratory education. *Journal of Education and Health Promotion, 13*(1), 112–120.

Müller, M. M. (2022). The 60th anniversary of CCLM: Celebrating progress in clinical chemistry and laboratory medicine. *Clinical Chemistry and Laboratory Medicine, 60*(2), 125–135.

Murphy, K., & Weaver, C. (2021). *Janeway's immunobiology* (9th ed.). Garland Science.

Nilendu, D. (2024). Enhancing forensic education: Exploring the importance and implementation of evidence-based education system. *Egyptian Journal of Forensic Sciences, 14*, Article 6. https://doi.org/10.1186/s41935-023-00375-w

Pandey, R., & Roy, A. (2024). Practical applications of forensic science in medical technology education. *Forensic Science International, 342*, Article 111520.

Pfau, R. O., Snyder, J. R., Rudmann, S. V., & Scott, J. E. (1991). Medical technologists in forensic science laboratories in the United States. *Laboratory Medicine, 22*(1), 40–44.

Ramirez, R., & Hood, M. (2020). *Forensic toxicology: Principles and applications*. Wiley-Blackwell.

Scanlan, P. M. (2013). A review of bachelor's degree medical laboratory scientist education and entry level practice in the United States. *EJIFCC, 24*(1), 5–13.

Sheikh Osman, F. (2023). Comparative analysis of competencies in forensic science and clinical laboratory science education. *Journal of Allied Health Sciences, 12*(2), 89–98.

Webmaster, A. (2021). Professional career pathways in forensic laboratory sciences. American Society for Clinical Laboratory Science (ASCLS). https://ascls.org/careers-in-forensic-sciences/