
**THE INTEGRATION OF THE SCIENCES AT WESTERN MONTANA COLLEGE,
DILLON, MONTANA ^{MAS}**

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Western Montana College is a small (1200 students) liberal-arts college located in southwestern Montana. Starting in the fall semester of 1996, the science departments joined forces to form an interdisciplinary department of environmental sciences. This move was motivated by a desire to create an undergraduate program that involves meaningful integration of the sciences. As a result, we eliminated the traditional departments (e.g., biology, chemistry, geology, and physics), and formed a single department focused on field-based, environment-specific education. In order to obtain sufficient background in a particular science discipline, each student will choose a track in biology, chemistry, or geology. However, to provide integration, students will also take several field courses that require them to work as part of an interdisciplinary research team. In addition, each student will do a senior project or professional internship that incorporates several science disciplines. This approach has been tested through several projects incorporating more than five classes. Studies have been started on the effects of past mining in the Birch Creek drainage in the Pioneer Mountain Range, and the effects of the Dillon community on the Beaverhead River. We have also had one student in an internship with the USFS in a study of riparian zones. Another student completed a semester of research at Argonne National Lab in Chicago, IL. That work was in an environmental sciences lab studying the soil as a possible carbon sink for global emissions.

FORENSIC SCIENCES

**ADVENTURES IN BABY-SITTING:
HOW NOT TO TREAT YOUR WARD!!! ^{MAS}**

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Perhaps one of the saddest and most tragic cases in recent times occurred during the evening hours of September 9, 1995 in Kalispell, MT. Two and a half year old Joshua Scott Norman died as the result of intentional poisoning at the hands of his teenage (15 years old) baby sitter. Early efforts at denial of any wrong doing on the part of the baby sitter were quickly dispatched through the combined efforts of the State Crime Lab's Medical Examiner, Toxicology Section, and Chemistry Section. The lab was able to show that young Joshua Norman had succumbed to lethal levels of codeine and phenol (one of the active ingredients found in Pine-Sol). The lab's

analytical results provided the investigators of the Kalispell Police Department the necessary tools to challenge the baby sitter's questionable participation. After 10 days of compassionate, though painstaking, interviews the baby sitter confessed to intentionally "dosing" her young ward. Consequently, the baby sitter was remanded to adult court where she pled guilty to homicide. This case, though tragic and heartbreaking as it was, may not have had a successful conclusion if not for the combined efforts and close communications between the State Crime Lab, the Kalispell P.D., the Flathead County Coroner's Office, and the Flathead County Attorney's Office.

ALCOHOL: THREE CASE STUDIES ^{MAS}

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A discussion of three recent cases analyzed at the State Crime Lab is presented with relevant scene descriptions, results of the autopsies, and analyses of the samples:

Case 1. The victim is described as an alcoholic 41 year old male who was found with his trousers and underwear around his ankles and dead in a closet of his trailer house. There was no evidence of trauma noted on the body and there was an absence of pornographic materials ruling out an autoerotic episode. Cause of death was not determined at the scene or during the autopsy. Analysis of submitted samples at the laboratory indicated high levels of methanol (0.27 gm/dL; Lethal Levels = 0.02-0.04 gm/dL). Investigating officers returned to the scene and found a gallon bottle of windshield washer fluid that contains 35% methanol under the kitchen sink. Cause of death in this case was due to methanol poisoning and manner of death was suicide.

Case 2. The victim is described as a 75 year old female who was found dead lying in the snow between her residence and her car. Small patches of fresh blood were noted in the snow around her, but there was no evidence of trauma. A cause of death was not determined at the scene or during the autopsy. Analysis of submitted samples indicated the presence of ethanol in both the blood (0.12 gm/dL, Legal Intoxication = 0.10 gm/dL) and urine along with significant glucosuria. Cause of death was attributed to hypothermia and manner of death was accidental with alcohol (ethanol) as a contributing factor.

Case 3. The victim is described as a 36 year old non-drinking female who was found dead lying on the front porch of her home with her coat for a pillow. A small amount of fresh blood was noted oozing from one ear during the autopsy, but no visible signs of trauma were noted. Again in this case no cause of death was apparent at autopsy. However, at autopsy a large fatty liver and brain atrophy were noted. Analysis of submitted samples in this case indicated a very high blood alcohol concentration (0.43 gm/dL; Legal Intoxication = 0.10 gm/dL) and the presence of caffeine in the blood. High levels of glucose were also detected in the urine even though the patient was not diabetic. Cause of death was attributed to hypothermia and manner of death was accidental with acute alcoholism as a contributing factor.