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<https://aeterna-ufa.ru> <https://sciartel.ru>
info@aeterna-ufa.ru info@sciartel.ru
+7 (347) 266 60 68 +7 (495) 514 80 82
450057, ул. Пушкина 120

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info@aeterna-ufa.ru info@sciartel.ru
+7 (347) 266 60 68 +7 (495) 514 80 82

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III. Conclusion and Recommendations:

III.1. Conclusion:

Through research, the author has selected 6 strength-building exercises for basketball students at the University of Mining and Geology, including 6 general strength-building exercises and 6 specialized strength-building exercises.

** Specialized strength training exercises:*

- Continuously and quickly toss and catch the ball in various positions (in place, turning around, moving, one-handed tossing and catching, two-handed tossing and catching).
- Hold a ball or a heavy object and perform movements such as raising your arms to chest level, shoulder level, upward and backward, and rotating them.
- Jumping and throwing the ball from different positions .
- Hold the elastic band or pull on an elastic object, swing your arm to hit the ball with the strength of your shoulder.
- Jump and throw the ball over the net into a designated area .
- Pass the ball into the wall while moving.

III.2. Recommendations:

During teaching, learning, and training, selected exercises aimed at developing strength for the basketball team of the University of Mining and Geology should be applied in practice, and their effectiveness should be initially evaluated. Through evaluation, the selected exercises have proven more effective than those commonly used at the University of Mining and Geology.

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Nguyen Huy Thong

Ha Noi University of Mining and Geology

INSTRUCTIONS ON THE RULES OF VOLLEYBALL FOR FEMALE STAFF MINING AND GEOLOGY UNIVERSITY

Summary

Based on the recreational volleyball documents from the General Department of Physical Education and Sports, the author introduces the rules of recreational volleyball for female staff members of the University of Mining and Geology.

Keywords:

Rules of play for women's recreational volleyball for female officials .

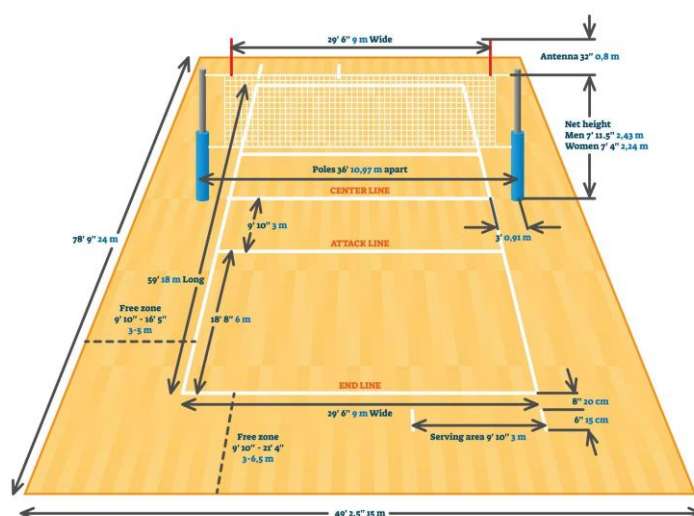
PROBLEM STATEMENT

Overview: Soft volleyball is a popular, health-promoting sport that fosters teamwork and resilience. At the University of Mining and Geology, it is highly favored by female students and staff, evidenced by annual tournaments. To address the need for a clearer understanding of the regulations during training and competition, this guide outlines the official rules for all participants.

CONTENT**RULES OF VOLLEYBALL****I. Playing fields and equipment.****Article 1. The playing field.**

Recreational Volleyball Court Specifications and Zones A recreational volleyball court is a flat, level, uniform, and hazard-free rectangle measuring 12 x 6m, surrounded by a free-play zone at least 2m wide with an unobstructed vertical clearance of 5m. Indoor surfaces must be light-colored, while outdoor courts permit a drainage slope of 5 mm/m; hard materials for lines are prohibited. All boundary lines are 5cm wide, light-colored, and included within the court's dimensions. A center line divides the court into two equal 6 x 6m sections directly under the net. On each side, an attack line is drawn parallel to and 2m from the center line axis to mark the front zone; this line is extended beyond the sidelines by three 15cm dashed lines spaced 20cm apart (105cm total length), and national competitions include a parallel dashed "Coach's Line" 105cm from the sideline. Specific designated areas include: the **Front Area**, extending from the center line to the back edge of the attack line and out to the free zone boundary; the **Serving Area**, a 6m wide zone behind each end line bounded by two 15cm perpendicular lines drawn 20cm behind the end line as extensions of the sidelines; the **Substitution Area**, bounded by the extensions of the two attack lines to the scorer's desk; the **Warm-up Area**, measuring 3 x 3m located at each corner of the free zone; and the **Penalty Zone**, a 1 x 1m area marked by 5cm red lines located behind each team's bench along the extension of the end line.

VOLLEYBALL COURT DIMENSIONS



Article 2. Net and net posts for recreational volleyball matches.

The net is stretched horizontally over the center line, with a standard height of 2.20m for men and 2.00m for women measured at the center of the court; the ends above the sidelines must be equal and may not exceed this height by more than 2cm. Structurally, the net is dark-colored, 7.5–8m long, 1m wide, and woven into 10cm square meshes. It features a 7cm wide white canvas band folded along the top edge (threaded with a tightening cable) and a 5cm wide white band along the bottom edge (threaded with a securing string). Two white **limit bands** (5cm wide, 1m long) are fastened vertically to the net directly above each sideline. An **antenna**—a flexible fiberglass rod 1.8m long and 10mm in diameter—is securely attached to the outer edge of each limit band; it extends 80cm above the top of the net and is painted in alternating 10cm sections of contrasting colors (typically red and white) to define the lateral boundaries of the ball's legal crossing space. The net is supported by two **net posts** positioned 0.5–1.0m outside the sidelines; these posts must be 2.30m high, adjustable, rounded, smooth, and securely anchored to the ground without the use of hazardous supporting cables or dangerous accessories.

Article 3. Regulations concerning inflatable volleyballs.

The ball must be spherical, made of soft rubber, and uniform in color (either yellow or orange-yellow). It must have an inflated circumference of 78–80cm and a total weight of 180–200 grams. For any given match, all balls used must be completely homogenous, meaning they must share identical specifications in terms of circumference, weight, internal pressure, material type, and color.

II. Regulations regarding the number of participants in a recreational volleyball match.**Article 4. The team.**

A team consists of a maximum of 10 athletes, 1 head coach, 1 assistant coach, 1 caregiver, and 1 doctor. The team captain on the field must be clearly indicated in the match report. Only athletes officially registered in the competition record are allowed to enter the field and compete. Once the coach and team captain have signed this official record, no changes to the registered roster are permitted.

Article 5. Leadership of the recreational volleyball team.

The team captain and coach are responsible for the behavior and discipline of the team members.

III. Format of recreational volleyball competition.**Article 6. One point is awarded, one set is won, and one match is won.**

A team scores a **point** when the ball lands on the opponent's court, or when the opponent commits a fault or receives a penalty. If consecutive faults occur, only the first is penalized; if simultaneous faults occur by both teams, a replay is directed. To **win a set** (except the third), a team must reach 21 points with a minimum 2-point advantage; play continues past 21-21 until a 2-point lead is established. A **match is won** by the team that wins two sets. In the event of a 1-1 tie, a decisive **third set** is played to 15 points (requiring a 2-point lead), and teams switch sides when one reaches 8 points. If a team refuses to play after being summoned, it **forfeits** the match with a loss of 0-2 (0-21 per set).

Article 7. Organizing the match.

Before the match, the first umpire conducts a draw to determine which team has priority to kick off first and which team chooses the court in the first set. If a third set is played, a new draw must be conducted.

IV. Activities related to recreational volleyball competitions.**Article 8. Status of competition.**

- 8.1. Ball in play:** Starts when the umpire whistles to allow the serve and the player contacts the ball.
8.2. Ball out of play: Ends when the referee whistles a fault; any action thereafter is ignored.

Article 9. Ball-playing movements.

Team Play: Each team must stay in their own area (retrieving from outside the free zone is permitted).

9.1. Team Hits: Max 3 hits to return the ball (excluding blocks). **9.1.1. Consecutive Hits:** A player cannot hit the ball twice in a row. **9.1.2. Simultaneous Hits:** Multiple players touching the ball counts as one touch each; concurrent hits by opponents allow 3 more touches (or a replay if in the net). **9.1.3. Assistance:** No using objects/teammates to reach the ball (teammates may only prevent/stop a foul). **9.2. Contact Rules:** Any body part is allowed; the ball must be hit, not caught/thrown. Multiple body contacts are allowed if part of a single action (or during blocking/first team hit). **9.3. Faults:** Four hits, illegal assistance, holding/throwing, or double contact.

Article 10. The ball is in the net.

10.1. The ball goes over the net.

10.1.1. The ball hit into the opponent's court must pass through the space above the net.

10.2. Ball touches the net: When passing over the net, the ball may touch the net.

10.3. The ball is in the net.

10.3.1. A rebound from a ball hitting the net can be returned if the team has not touched the ball more than three times.

10.3.2. If the ball tears the net or pulls the net down, discard that play and play again.

Article 11. The athlete is near the net.

11.1. Above the Net: Blockers may touch the ball beyond the net if they don't obstruct the opponent's attack; hitters may follow through over the net provided contact occurred in their own space. **11.2. Below the Net:** Crossing is allowed if it doesn't obstruct the opponent. Penetrating the opponent's court is permitted if part of the feet/hands remains on or above the center line. Movement into the opponent's free zone is allowed if there is no interference. **11.3. Net Contact:** Touching the net during a playing action is a fault. Contact with posts or external equipment is allowed if it does not affect play. Net movement caused by the ball hitting the net into an opponent is not a fault. **11.4. Net Faults:** Fouls include touching the ball/opponent in their space, hindering play, fully crossing the center line, touching the top tape/antenna during an action, using the net for support, gaining an unfair advantage, or obstructing the opponent.

Conclusion and recommendations.

Through my experience teaching students at the University of Mining and Geology, combined with organizing volleyball tournaments for female staff and students, I have found that soft volleyball is very suitable for female staff and students of the University of Mining and Geology to practice and compete in. Therefore, I propose that the university consider establishing a soft volleyball club for female staff and students and organizing an annual soft volleyball tournament for staff and students of the University of Mining and Geology.

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Nguyen Thi Hong, MSc.

Department of Foundation, Academy of Cryptography Techniques

**BRIDGING CONTINUOUS PRODUCTION AND DISCRETE SECURITY:
A PEDAGOGICAL FRAMEWORK GROUNDED IN LOGARITHMIC ISOMORPHISM****Abstract**

This paper proposes an innovative pedagogical framework for teaching advanced mathematics at the Academy of Cryptography Techniques to address the cognitive fragmentation between continuous calculus and discrete algebra. Grounded in Realistic Mathematics Education (RME), the study examines the phenomenon of structural convergence by deciphering the mathematical isomorphism between two classical models: the Cobb-Douglas production function (operating in the continuous space $\mathbb{R}^+$) and the Diffie-Hellman key exchange protocol (operating in the discrete space $\mathbb{Z}^*$). The structural analysis reveals that the logarithmic transformation functions as a dual-natured mechanism — linearizing continuous economic hyperplanes for predictable forecasting while obfuscating discrete lattice trajectories for cryptographic security. The proposed dual-stage pedagogical module not only optimizes students' cognitive architectures based on Schema Theory and Metaphorical Thinking but also fosters interdisciplinary intuition, enhancing algorithmic reasoning and long-term knowledge retention for cryptography students in the digital era.

Keywords:

Interdisciplinary mathematics pedagogy; Structural convergence; Cobb-Douglas function; Diffie-Hellman protocol; Logarithmic isomorphism; Realistic Mathematics Education (RME).

1 Introduction**1.1 Cognitive Fragmentation in Undergraduate Mathematics Education**

At the Academy of Cryptography Techniques, foundational mathematics serves not only as an academic cornerstone but also as the core language for students to access advanced specialized disciplines such as Information Security, Cryptographic Engineering, and Information Technology. However, within the current curriculum, mathematical knowledge is often compartmentalized mechanically. Students typically approach multivariable calculus with continuous variables over the real space ($\mathbb{R}^+$) as a pure tool for optimization or signal processing, while learning abstract algebra and discrete number theory over modular integer spaces ($\mathbb{Z}^*$) exclusively to serve cryptographic algorithms.

This traditional separation inadvertently creates a significant cognitive barrier for learners. Cryptography students tend to view continuous calculus and discrete algebra as two isolated worlds. The absence of an underlying structural link makes it difficult for learners to fluidly transfer their functional intuition into the fractured configurations of large integer spaces. Consequently, this leads to the rote memorization of cryptographic protocols without a profound understanding of the spatial transformations embedded beneath.

1.2 The Theoretical Framework of “Structural Convergence”

To address this fragmentation and enhance professional orientation within foundational mathematics lectures, this study proposes a pedagogical framework grounded in the phenomenon of *Structural Convergence*. This unique occurrence takes place when an empirical continuous economic model and a discrete cryptographic algorithm, despite originating from entirely distinct objectives, intrinsically converge toward the same core multiplicative exponential structure.

In accordance with the philosophy of Realistic Mathematics Education (RME), advanced mathematics