



*e-prospectus*  
*2021-2022*

**Central University Of Rajasthan**

*Department of Sports  
Biosciences*

# Faculty profile



## Dr. Chandra Sekhar Gahan

### Associate Professor and Head

M.Sc. Applied & Industrial Microbiology, Utkal Univ. Odisha; Lic.Tech. Engg. Proc. Metall. LTU; Ph.D. Engg. Proc. Metallurgy, LTU Sweden; Post Doc. UCT South Africa; Scientist KIGAM South Korea; Asst. Prof. SRM Univ. Chennai; Marie Curie Fellow SDU Turkey  
coord.sportsciences@curaj.ac.in 7727805067



## Dr. Neha Singh

### Assistant Professor

Post-doctoral fellow, Icahn School of Medicine at Mount Sinai, New York, USA • Ph.D. Biomedical Sciences (Catholic University of Leuven, Belgium) • M.Sc. Biochemistry, Jiwaji University, Gwalior, India  
neha.singh@curaj.ac.in



## Dr. Hemanth Naick Banavath

### Assistant Professor

Ph.D. Biochemistry & Molecular Biology, Pondicherry University, Puducherry. • Research Trainee – Division of Cardiovascular Pathology, Johns Hopkins University, Baltimore, USA. • Post-Doctoral Research Fellow – Division of Biology  
hemanth.naick@curaj.ac.in



## Dr. Sunil G Purohit

### Assistant Professor

Ph.D. Sports Science. M.Phil. Biochemistry, M.Sc. Biochemistry, Diploma in Sports Coaching, Sports Authority of India, National Institute of Sports, Patiala  
sgpurohit@curaj.ac.in  
9569457578



# Vision, mission and goal



The School of Sports Sciences was established in May 2018 with the support of the Ministry of Youth Affairs and Sports, Govt. of India. The School of Sports Sciences aims to carry out active teaching and research in the various fields of Sports Sciences. The Master programs of this school would enhance the knowledge of the students in sports sciences and improve their level of understanding with underlying scientific principles in sports sciences. The courses would emphasize on both theoretical and laboratory aspects which would help the students to enrich and sharpen their knowledge both in instrumentation techniques and software-based simulations in sports sciences.

We encourage and guide our students to study scientific principles related to sports performance through a broad range of scientific fields including Physiology, Nutrition and Biochemistry. Our courses also help students develop numerous useful skills such as designing research studies, collecting data and information, critical data analysis, dissecting results, problem solving, organization and time management. Keeping in mind the career ambitions of the students, our school also provides ample opportunities to students to learn novel state of the art technologies in multiple scientific research areas which will give them an extra edge in their sports science careers. We are confident that our well-planned curriculum, guidance, dedicated faculty and remarkable leadership will bring out the best in our students and enrich them with the finest sports science expertise





## Programmes offered by the Department of Sports Biosciences

### M. Sc. Sports Biochemistry

**Approved Intake:** 30 Students

❖ **Minimum Eligibility for entry:** Bachelors' Degree in Biochemistry/Life Sciences/ any other branch of Science/or any other examination recognized equivalent there to or higher degree, any Medical (MBBS, BDS, BAMS) BPT/Allied Medical Sciences degree with 50% marks or equivalent grade in aggregate for General category and 45% or equivalent grade for SC/ST/OBC/PWD candidates

❖ **Course Structure :** Semester-wise, identifying Core courses, Discipline Electives, Extra-Departmental Electives, Practice/Lab/Workshop Courses

### M. Sc. Sports Nutrition

**Approved Intake:** 30 Students

❖ **Minimum Eligibility for entry:** Bachelors' Degree in Nutrition/food and Nutrition/food technology/food sciences/Life Sciences/ any other branch of Science/or any other examination recognized equivalent there to or higher degree, any medical (MBBS, BDS, BAMS) BPT/Allied Medical Sciences degree with 50% marks or equivalent grade in aggregate for General category and 45% or equivalent grade for SC/ST/OBC/PWD candidates

❖ **Course Structure :** Semester-wise, identifying Core courses, Discipline Electives, Extra-Departmental Electives, Practice/Lab/Workshop Courses

### M. Sc. Sports Physiology

**Approved Intake:** 30 Students

❖ **Minimum Eligibility for entry:** Bachelors' Degree in Nutrition/food and Nutrition/food technology/food sciences/Life Sciences/ any other branch of Science/or any other examination recognized equivalent there to or higher degree, any medical (MBBS, BDS, BAMS) BPT/Allied Medical Sciences degree with 50% marks or equivalent grade in aggregate for General category and 45% or equivalent grade for SC/ST/OBC/PWD candidates

❖ **Course Structure :** Semester-wise, identifying Core courses, Discipline Electives, Extra-Departmental Electives, Practice/Lab/Workshop Courses

SEMESTER I		M.Sc. Sports Biochemistry	
Code	Title of Course	Type of Course	Credits
MSSB 101	Human Anatomy and Physiology	Core 1	4
MSSB 102	Biomolecules and Metabolism	Core 2	4
MSSB 103	Food and Nutrition	Core 3	4
MSSB 104	Essentials of Sports	Core 4	4
MSSB 105	Discipline Elective I	DE 1	4
MSSB 106	Practicum I	P 1	2
MSSB 107	Practicum II	P 2	2
MSSB 108	Fitness		1
MSSB 109	Societal		1
SEMESTER II			
MSSB 201	Kinanthropometry	Core 5	4
MSSB 202	Adaptations to Exercise and Training	Core 6	4
MSSB 203	Principles and methods of Sports Training	Core 7	4
MSSB 204	Discipline Elective II	DE 2	4
MSSB 205	Discipline Elective III	DE 3	4
MSSB 206	Practicum III	P 3	2
MSSB 207	Practicum IV	P 4	2
MSSB 208	Fitness		1
MSSB 209	Societal		1
SEMESTER III			
MSSB 301	Sports and Exercise Metabolism	Core 8	4
MSSB 302	Instrumentation & Analytical Technique	Core 9	4
MSSB 303	Discipline Elective IV	DE 4	4
MSSB 304	Discipline Elective V	DE 5	4
MSSB 305	Elective I	E 1	4
MSSB 306	Practicum V	P 5	2
MSSB 307	Practicum VI	P 6	2
MSSB 308	Fitness		1
MSSB 309	Societal		1
SEMESTER IV			
MSSB 401	Discipline Elective VI	DE 6	4
MSSB 402	Elective II	E 2	4
MSSB 403	Dissertation		16
MSSB 404	Fitness		1
MSSB 405	Societal		1
TOTAL CREDITS			96

SEMESTER I		M.Sc. Sports Nutrition	
Code	Title of Course	Type of Course	Credits
MSSN 101	Human Anatomy and Physiology	Core 1	4
MSSN 102	Biomolecules and Metabolism	Core 2	4
MSSN 103	Food and Nutrition	Core 3	4
MSSN 104	Essentials of Sports	Core 4	4
MSSN 105	Discipline Elective I	DE 1	4
MSSN 106	Practicum I	P 1	2
MSSN 107	Practicum II	P 2	2
MSSN 108	Fitness		1
MSSN 109	Societal		1
SEMESTER II			
MSSN 201	Kinanthropometry	Core 5	4
MSSN 202	Adaptations to Exercise and Training	Core 6	4
MSSN 203	Principles and methods of Sports Training	Core 7	4
MSSN 204	Discipline Elective II	DE 2	4
MSSN 205	Discipline Elective III	DE 3	4
MSSN 206	Practicum III	P 3	2
MSSN 207	Practicum IV	P 4	2
MSSN 208	Fitness		1
MSSN 209	Societal		1
SEMESTER III			
MSSN 301	Dietary Supplements and Ergogenic Aids	Core 8	4
MSSN 302	Sports Specific Nutrition	Core 9	4
MSSN 303	Discipline Elective IV	DE 4	4
MSSN 304	Discipline Elective V	DE 5	4
MSSN 305	Elective I	E 1	4
MSSN 306	Practicum V	P 5	2
MSSN 307	Practicum VI	P 6	2
MSSN 308	Fitness		1
MSSN 309	Societal		1
SEMESTER IV			
MSSN 401	Discipline Elective VI	DE 6	4
MSSN 402	Elective II	E 2	4
MSSN 403	Dissertation		16
MSSN 404	Fitness		1
MSSN 405	Societal		1
TOTAL CREDITS			96

SEMESTER I		M.Sc. Sports Physiology	
Code	Title of Course	Type of Course	Credits
MSSP 101	Human Anatomy and Physiology	Core 1	4
MSSP 102	Biomolecules and Metabolism	Core 2	4
MSSP 103	Food and Nutrition	Core 3	4
MSSP 104	Essentials of Sports	Core 4	4
MSSP 105	Discipline Elective I	DE 1	4
MSSP 106	Practicum I	P 1	2
MSSP 107	Practicum II	P 2	2
MSSP 108	Fitness		1
MSSP 109	Societal		1
SEMESTER II			
MSSP 201	Kinanthropometry	Core 5	4
MSSP 202	Adaptations to Exercise and Training	Core 6	4
MSSP 203	Principles and methods of Sports Training	Core 7	4
MSSP 204	Discipline Elective II	DE 2	4
MSSP 205	Discipline Elective III	DE 3	4
MSSP 206	Practicum III	P 3	2
MSSP 207	Practicum IV	P 4	2
MSSP 208	Fitness		1
MSSP 209	Societal		1
SEMESTER III			
MSSP 301	Essentials of Physiology in Sports	Core 8	4
MSSP 302	Physiological Support for Athletes	Core 9	4
MSSP 303	Discipline Elective IV	DE 4	4
MSSP 304	Discipline Elective V	DE 5	4
MSSP 305	Elective I	E 1	4
MSSP 306	Practicum V	P 5	2
MSSP 307	Practicum VI	P 6	2
MSSP 308	Fitness		1
MSSP 309	Societal		1
SEMESTER IV			
MSSP 401	Discipline Elective VI	DE 6	4
MSSP 402	Elective II	E 2	4
MSSP 403	Dissertation		16
MSSP 404	Fitness		1
MSSP 405	Societal		1
TOTAL CREDITS			96

# LIST OF ELECTIVES

ELECTIVE COURSES		
Sl. No.	Title of Course	Credits
1.	Fatigue, Injuries and Rehabilitation	4
2.	Essentials of Sports	4
3.	Kinanthropometry	4
4.	Health Fitness and Wellness	4
5.	Research Methodology	4
6.	Adaptations to Exercise and Training	2
7.	Exercise and Environmental Physiology	2
8.	Performance Evaluation and Testing	1
9.	Sports Specific Nutrition	1
10.	Physiology of Sports and Exercise	4
11.	Sports Ergonomics	4
12.	Statistics for Sports Science	4
13.	Endocrinology in Sports	4



# Department of Sports Biosciences



Central University of Rajasthan has started Department of Sports Biosciences under the School of Sports Sciences MYAS-CURAJ supported by the Ministry of Youth Affairs and Sports (MYAS). The department runs three M.Sc. programs: M.Sc. Sports Physiology, M.Sc. Sports Biochemistry and M.Sc. Sports Nutrition. These courses would enhance the knowledge of the students in Sports Biosciences and improve their level of understanding with underlying biological scientific principles in sports sciences. The courses would emphasize on both theoretical and laboratory aspects and most specifically the biochemical and nutritional analysis together with computational simulation. The program would also allow students to interact and carry out their practical tests both on the field with the athletes/sports persons during the games and sports. This would allow the students to enrich and sharpen their knowledge both in instrumentation techniques and software for understanding the underlying intricacies of sports activities and improvisation of the games/sports. Appealing to those with an enthusiasm for biosciences of sports, physical activity and human biology, these courses would teach how sporting performance can be improved to ensure individual level success and achieve improvisation in the potential of sports persons

# Equipments Procured/Facility Available

Fully Automatic Hematological Analyzer



Spirometer (Portable)



RT PCR



Semi Automatic Biochemistry Analyzer





Small refrigerated Centrifuge



Refrigerated Centrifuge



Chemidoc



Homogenizer



Deep Freezer (-40°C)



CO2 incubator



Refrigerator



Hot air oven



Nanodrop



PCR



Hot plate and magnetic stirrer



Portable Digital Electronic Body Weigh Scale



Gel electrophoresis apparatus

Weighing balance



Vortex



Dry block heater



Waterbath



pHmeter





# What our students say about us



*Batch (2018-2020)*



**Priya Tiwari**

*Exercise Physiologist  
Sports Authority of India*

*“CURAJ provide s excellent opportunity to groom in different verticals with its extraordinary facilities with in the campus and the nation's best teaching faculty makes students future ready to serve the nation as I'm proudly serving at Sports Authority of India, Bhopal as Exercise Physiologist. To the point teaching and practical approach based explanation by the Bio-sciences department and the professors throughout the course proved to be the cornerstone of my success.”*



**Nidhi Saxena**

*Exercise Physiologist  
Sports Authority of India*

*“I'm extremely fortunate to be a part of Sports Biosciences department of CURAJ. Sports Biosciences has been the first step of my career ladder. It is a great place to learn scientific skills in the area of sports. Faculty at Sports Biosciences department have always supported me and made me realize my potential and utilize it to the best.”*



# What our students say about us



*Batch (2019-2021)*



**Mohit Dhariwal**

*Sports Nutritionist*

*Organization : Olympic Gold Quest (OGQ)*

*“Department of Sports Bio-science has been a home of wide open opportunities for me once i got here. I completed my M.Sc. in Sports Nutrition from the Department of Sports Bio-Science , CURAJ. The teachers here have a practical approach to teach the students. All the teachers are experienced and supportive. The department gave me oppurtunity to learn the sports science concept in a practical approach.*

*I am very grateful for this to all the teachers and Sports Bio-science department.*”



**Eshita Pareek**

*Consultant Nutritionist*

*Company- Healthifyme wellness private limited*

*“CURAJ has been a home of wide-open opportunities for me since I got here. The faculty and staff of Sports biosciences are very supportive. My experience here has been really wonderful. The knowledge which I received here is amazing. Everything connects in the end like I chose my dissertation topic related to app and currently I am working in an app. Just follow your passion and I would like to thank my mentor Dr. Neha who allowed me to work on my project and guide me really well and HOD Dr. Chandra Shekhar Gehan for helping me throughout my journey.*”

## MINOR EQUIPMENTS

• B.P. Instrument (Sphygmomanometer)
• Anthropometric Measuring Set
• Cardio Check Health Kit
• Digital Metronome
• Finger Pulse Oxymeter
• Skin Fold Calliper For Lab
• Stadiometer Digital
• Stethoscope Litman Type
• Wired Measuring Tape
• Cones
• Thera-Bands
• Gym Balls
• Skipping Ropes
• Chin-up bar
• Digital Glucometer
• Sit & Reach Box
• Steel Measuring Tape
• Skin Fold Calliper Portable
• Stadiometer Portable
• Stop Watch Digital
• Sit-ups Mats
• Ladders for Speed & Agility drill
• Resistance Training Loop/Band
• Medicine Balls
• Abdominal Wheel Roller
• Push-up bar
• Portable Spirometer

## HUMAN BODY MODELS

• Human Brain
• Human Eye
• Ear With Pinna
• Heart
• Functional Hip Joint
• Functional Elbow Joint
• Imported Vertebral Column with Stand
• Imported Human Skeleton with stand
• Torso with Head and Interchangeable Male and Female Genitalia
• Kidney on Stand
• Liver showing Gall Bladder
• Functional Shoulder Joint
• Functional Wrist Joint
• Functional Ankle Joint
• Imported Functional Knee Joint (Right)
• Stomach on Stand

# RESEARCH LAB

The Sports Biosciences department strives to be on the forefront of research in the field of Sports Physiology, Sports Nutrition and Sports Biochemistry. These are the advanced research areas in the global scenario. The School has a trained and dedicated pool of researchers to tap this potential.





# RESEARCH LAB





# ELECTROMYOGRAPHY (EMG) AND NERVE CONDUCTION VELOCITY (NCV)



## SPIROMETER

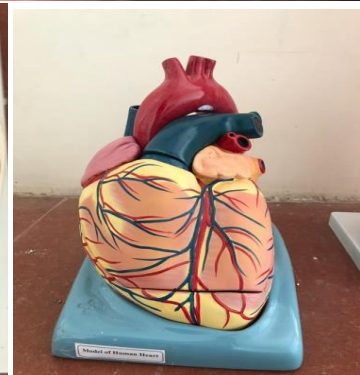
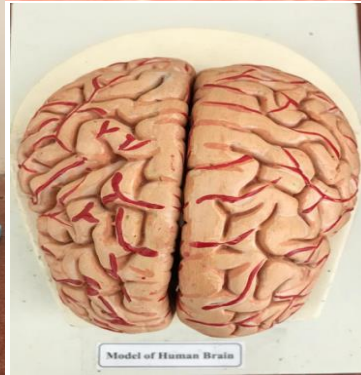


## FULLY AUTOMATIC HEMATOLOGICAL ANALYZER





# PHYSIOLOGY LAB, ANATOMICAL MODELS, ANTHROPOMETRIC ASSESSMENT, PHYSICAL FITNESS MEASUREMENTS





# Students achievements/activities

Department organised its first successful event in the form of Sports Science Week named 'Sports Kinesia-2018' many students from various Departments of CURAJ participated in different events organised for the whole week and more than 100 people (including students and faculty) participated and got to know their body and nutritional aspects of their health and fitness analysed on the last day of the week in event named as 'Know Your Body and Nutritional consultation'

## ➤ *Students who qualified NET :*

Manisha (Batch 2018-2020) , Anjali (Batch 2018-2020), Mohor( Batch 2019-2021), Mohit( Batch 2019-2021)

## ➤ *Students who secured placements just after completing MSc at School of Sports Science:*

- Priya Tiwari (Batch 2018-2020)
- Nidhi saxena (Batch 2018-2020)
- Eshita Pareek( Batch 2019-2021)
- Mohit Dhariwal ( Batch 2019-2021)

- Divik Ranjan (Batch 2020-2022) scored second rank in quiz competition on "Global COVID vaccine production and regulatory challenges" organized by Dept. of Pharmacy. CURAJ, 2021



# Teaching and Non-Teaching staff members



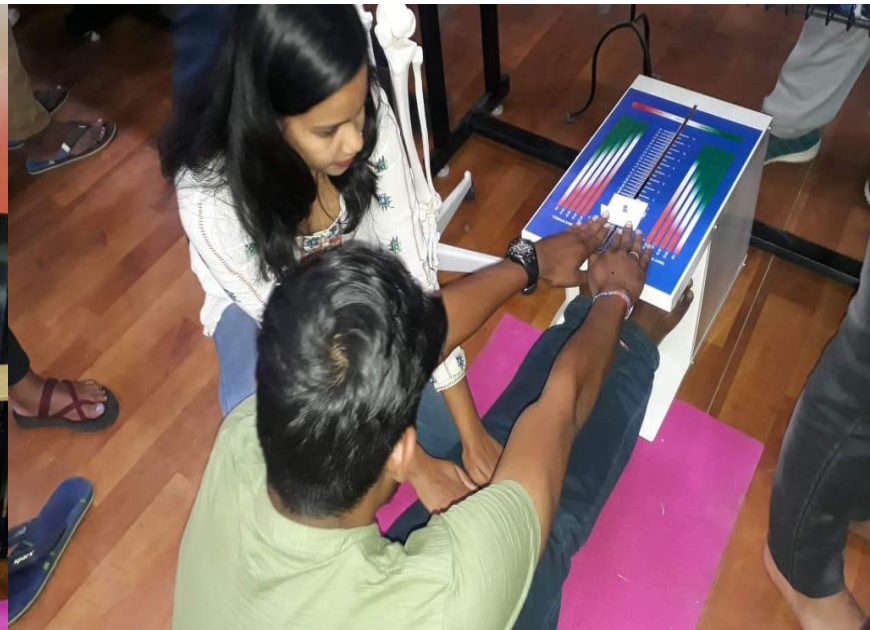


# Active participation of students and faculty in sports activities along with academic learning and scientific research





# Sports bioscience students at National Science day Event





# GUEST LECTURE BY PROF. G.L. KHANNA (SPORTS PHYSIOLOGY) AND PROF. AGYAJEET SINGH (SPORTS PSYCHOLOGY)





# DISTINGUISHED LECTURE BY PROFESSOR JAMES F SALLIS, UNIVERSITY OF CALIFORNIA, SAN DIEGO, USA





# DEPARTMENTAL ACTIVITIES

## NATIONAL WEBINAR ON MITOCHONDRIA IN HEALTH AND DISEASE-2021

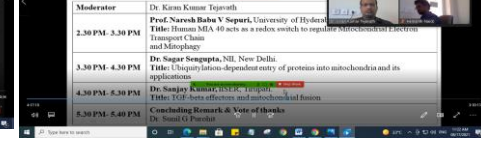
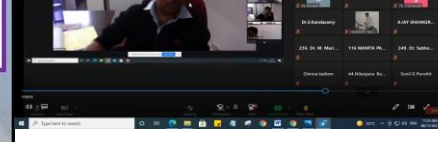
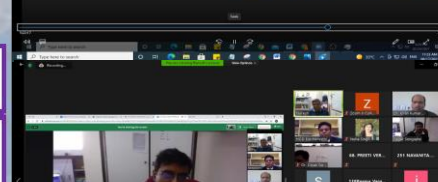


### CENTRAL UNIVERSITY OF RAJASTHAN

NH-8, Bandarsindri, Kishangarh, Ajmer, 305 817, Rajasthan, INDIA  
Department of Biochemistry, School of Life Sciences &  
Department of Sports Biosciences, School of Sports Sciences  
One Day National Webinar on

### Mitochondria in Health and Disease -2021

Date: 24<sup>th</sup> February 2021



**Patron**  
Prof. Neeraj Gupta  
Vice Chancellor (I/C)

**Convener**  
Prof. Sanjib K Panda  
Head, Department of Biochemistry

**Organizing Secretaries**  
Dr. Chandra Sekhar Gahan  
Dr. Kiran Kumar Tejavath  
Dr. Neha Singh  
Dr. Vijay Kumar Prajapati  
Dr. Hemanth Naick B

**Jointly Organized by**  
Department of Biochemistry, CURAJ.  
Department of Sports Bio-sciences, CURAJ.  
DATE: 24<sup>th</sup> February, 2021.  
Time : 10.00 AM – 6.00 PM

**Speakers**

Prof. Sudipta Basu  
IIT Gandhinagar

Prof. Naresh Babu V Sepuri  
University of Hyderabad

Dr. Gulam Hussain Syed  
ILS Bhubaneswar

Dr. Govindaraj Periyasamy  
IoB Bengaluru

Dr. Sanjay Kumar  
IISER Tirupati

Dr. Sagar Sengupta  
NII New Delhi

**Who can attend :** Masters students, Research scholars, Faculties and Researchers across India.

**Registration is free**  
**Registration link:**  
<https://forms.gle/4NOTDJVkoR9NAPgc5>  
**Last date of Registration**  
24<sup>th</sup> February 2021  
**Contact Email-** [mito2021.curaj@gmail.com](mailto:mito2021.curaj@gmail.com)  
**e-certificates will be provided to the participants**



## ORGANIZING AND PARTICIPATION IN FIT INDIA CYCLOTHON EVENT





# DEPARTMENTAL ACTIVITIES







## CAREER PROSPECTS

Our courses can lead to excellent career opportunities for the students

- ❖ Consultant nutritionist
- ❖ Sports Scientists
- ❖ Training elite athletes in professional sports
- ❖ Fitness testing
- ❖ Lifestyle consultancy
- ❖ Research
- ❖ Exercise prescription
- ❖ Sports performance analyst
- ❖ Sports development officer
- ❖ Exercise physiologist
- ❖ Sports Nutritionist
- ❖ Sports governance
- ❖ Sports Science consultants