

# SHIVAJI UNIVERSITY, KOLHAPUR



Established: 1962

A++ Accredited by NAAC (2021) With CGPA 3.52

**Bachelor of Science (B. Sc. in Geography)**

**Under  
Faculty of Science and Technology**

**B. Sc. Part-I (Semester – I and II)**

**STRUCTURE AND SYLLABUS IN ACCORDANCE WITH  
NATIONAL EDUCATION POLICY – 2020  
HAVING CHOICE BASED CREDIT SYSTEM  
WITH MULTIPLE ENTRY AND MULTIPLE EXIT OPTIONS**

**TO BE IMPLEMENTED FROM ACADEMIC YEAR 2024-2025  
ONWARDS**



**Shivaji University, Kolhapur**

**First Year Bachelor of Arts (B. A.-I) (UG CERTIFICATE) in Geography**

Year	B. Sc. I
Semester	I & II
Level	4.5
Total Credits	22 + 22 = 44
Degree Awarded	UG CERTIFICATE (After 44 Credits in Total)

**A-I) B. Sc. – I: Semester-I (Total Credits-22):**

Course Category		Course Name	Course Code	Credits
DSC	--	Physical Geography – DSC-I		2
		Physical Geography – DSC-II		2
		Representation of Geo Data – DSC P-I		2
IDC/MDC/ GEC/OE	OE	1) Science, Technology and Development – OE I 2) Fundamentals of Earth Science – OE I		2
<b>Credits for B. A./ B. A. B. Ed. – I SEM-I</b>				<b>08</b>

**A-I) B. Sc.– II: Semester-II (Total Credits-22):**

Course Category		Course Name	Course Code	Credits
DSC	--	Human Geography – DSC-III		2
		Human Geography – DSC-IV		2
		Representation of Geo Data – DSC P-II		2
OE	OE	1) Science, Technology and Development – OE II 2) Fundamentals of Earth Science – OE II		2
<b>Credits for B. A./ B. A. B. Ed. – I SEM-II</b>				<b>08</b>

# Shivaji University, Kolhapur

## B. Sc. Part-I

### DSC-I: Physical Geography-I (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	I
<b>Name of Vertical Group</b>	:	DSC-I (V-1)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Physical Geography -I</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 15 Hours= 30 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	40:10
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

Welcome to the fascinating realm of Physical Geography at the B. A./ B.Ed./ B. Sc. first year. Delve into the intricacies of Earth's physical processes, transformation of genesis of landforms to the dynamics of climates. This course introduces students to the fundamental principles governing natural phenomena, atmosphere and its elements fostering a comprehensive understanding of our planet's physical attributes. Explore the mysteries of weather patterns, denudational agents and environmental interactions, laying the foundation for a profound journey into the captivating field of geography.

#### General Objectives of the Course:

1. To gain in-depth knowledge of the movement and fundamental climatological laws for a comprehensive grasp of physical geographical evolution.
2. To explore the earth's movements and weather phenomena.
3. To develop expertise in nature of rocks and the weathering of rock, facilitating the recognition of geographical features developed by denudational agent.
4. To apply knowledge through case studies, analyzing geographical incidents, fostering problem-solving skills with a focus on local and India.

#### Course Outcomes:

By the end of the course, students would be able to:

1. The students will possess a comprehensive understanding of Physical Geography, branches and fundamental laws.

2. They will demonstrate proficiency in analyzing rocks weathering, interpreting endo/exogenetic Earth movements, and of Wind and Precipitation
3. Applying theoretical knowledge to real-world scenarios, emphasizing disaster management, urban planning and transportation.

### Nature of Question Paper:

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

Modules				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Introduction to Physical Geography	1.1 Definition, nature and Scope of Physical Geography 1.2 Branches of Physical Geography 1.3 Importance of Physical Geography 1.4 Physical Geography as a base of Disaster Management	15	01
2	Transformation of the Earth surface	2.1 Endogenetic Earth's Movements: slow movements, sudden movements 2.2 Weathering: meaning, types and controlling factors. 2.3 Mass Movement: meaning, controlling factors and types of Mass Movement 2.4 Davis Cycle of Erosion and fluvial landforms	15	01

### Suggested Readings

1. Dayal, P; A Text book of Geomorphology. Shukla Book depot, Patna,1996.
2. Dury, G.H. : The Face of the Earth, Penguins, 1980.
3. Critchfield, H : General Climatology, Prentice-Hall, New York,1975.
4. ICSSR: A Survey of Research in Physical Geography. Concept, New Delhi, 1983.
5. D.S. Lal: Climatology, Sharda Pustak Bhavan, Allahabad, 2010.
6. Singh,S. :Geomorphology, Prayag Pustakalaya, Allahabad,1998.
7. सवदी व कोळेकर; प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०२०
8. दाते व दाते; प्राकृतिक भूविज्ञान. अनिरुद्ध पब्लिशिंग हाऊस, पुणे. २०२०
9. आर. जी. जाधव; प्राकृतिक भूगोल. प्रारुप पब्लिकेशन, कोल्हापूर. २०२०
10. सवदी व कोळेकर; प्राकृतिक भूगोल आणि भूरूपशास्त्र. डायमंड प्रकाशन पुणे. २०१४

11. मोरे व पगार; प्राकृतिक भूगोल. प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०१९

# Shivaji University, Kolhapur

## B. Sc. Part-I

### DSC-II: Physical Geography-II (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	I
<b>Name of Vertical Group</b>	:	DSC-II (V-1)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Physical Geography-II</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 15 Hours= 30 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	40:10
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

Atmosphere is a main component of earth's system. Start from the origin, it comprises various characteristics. The Insolation, temperature, atmospheric pressure, planetary winds are the points to study the atmosphere in detail. The Humidity and Precipitation are the major parts of atmosphere. The precipitation is given in the role of forms and rainfall is elaborated with its types. The concept of climate change has the need to study during the present time. This is also included to get extra knowledge about the repercussions of human development on nature.

#### General Objectives of the Course:

1. To understand the properties of atmosphere and its components.
2. To study the elements of climate like temperature and air pressure with its distribution.
3. To study the winds and forms of precipitation and detail information of rainfall.
4. To study the monsoon in India and concept of climate change.

#### Course Outcomes:

By the end of the course, students will be aware with knowledge:

1. of the properties of the atmosphere and its components in detail.
2. about the concepts of temperature and atmospheric pressure.
3. of the forms of precipitation and rainfall.
4. of monsoon and climate change.

**Nature of Question Paper:**

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

**Physical Geography-II**

Content of Modules				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Atmosphere and Temperature	1.1 Basic Concepts: Weather and Climate 1.2 Composition of the Atmosphere 1.3 Structure of the Atmosphere 1.4 Insolation: Solar Constant, affecting factors on distribution of Insolation and Global Heat Budget 1.5 Temperature: Factors affecting the distribution of temperature 1.6 Distribution of temperature: Vertical, horizontal and seasonal.	15	01
2	Elements of Atmosphere	2.1 Atmospheric Pressure: Factor Affecting on Distribution of Atmospheric Pressure, Pressure Belts 2.2 Winds: Planetary Winds and its types 2.3 Precipitation: Forms of Precipitation 2.4 Rainfall: Types of Rainfall 2.5 Monsoon Climate in India 2.6 Climate Change: Concept, Causes and Impact	15	01

**Suggested Readings**

1. Dayal, P; A Text book of Geomorphology. Shukla Book depot, Patna, 1996.
2. Dury, G.H. : The Face of the Earth, Penguins, 1980.
3. Critchfield, H : General Climatology, Prentice-Hall, New York, 1975.
4. ICSSR: A Survey of Research in Physical Geography. Concept, New Delhi, 1983.
5. D.S. Lal: Climatology, Sharda Pustak Bhavan, Allahabad, 2010.

6. Singh,S. :Geomorphology, Prayag Pustakalaya, Allahabad,1998.

7. सवदी व कोळेकर; प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०२०

8. दाते व दाते; प्राकृतिक भूविज्ञान. अनिरुद्ध पब्लिशिंग हाऊस, पुणे. २०२०

9. आर. जी. जाधव; प्राकृतिक भूगोल. प्रारूप पब्लिकेशन, कोल्हापूर. २०२०

10. सवदी व कोळेकर; प्राकृतिक भूगोल आणि भूरूपशास्त्र. डायमंड प्रकाशन पुणे. २०१४

11. मोरे व पगार; प्राकृतिक भूगोल. प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०१९



# Shivaji University, Kolhapur

## B. Sc. Part-I

### DSC Practical-I: Representation of Geo Data-I (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	I
<b>Name of Vertical Group</b>	:	DSC P-I (V-2)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Practical- I: Representation of Geo Data</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 30 Hours= 60 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	00 : 50
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

Practical work is the most important part of Geography. In present syllabus, the theoretical knowledge in Geomorphology and Climatology has been given for the sake of application of information through practical. The practical part includes the representation of relief features and climatic data. The conceptual information with practical will be part of this practical.

#### General Objectives of the Course:

1. To study the geomorphological information for representation of relief features.
2. To study the geomorphological information for representation of slopes.
3. To get the basic information of climatic instruments with its principles, structure, function and use.
4. To study the different methods of climatic data presentation.

#### Course Outcomes:

By the end of the course:

1. The students will be able to represent geomorphological data of relief features.
2. The students will be able to represent geomorphological data of slope.
3. The students will be get information of climatic instruments with its principles, structure, function and use.
4. The students will be able with different methods of climatic data presentation.

## Practical: Representation of Geo Data- I

Content of Modules				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Representation of Relief features	1.1 Methods of Representation of Relief i) Pictorial Method ii) Mathematical Method 1.2 Contour Features 1.3 Determination of Stream order 1.5 Method of Showing Relief by Satellite Images	30	01
2	Representation of Climatic data	2.1 Line and Bar Graph 2.2 Ergograph 2.3 Isopleth: Isotherm, Isobar, and Isohytes 2.4 Weather Instruments: 2.4.1 Thermograph 2.4.2 Barograph 2.4.3 Rain Gauge 2.4.4 Cup Anemometer	30	01

### Suggested Readings

1. Buoygoot, J. (1964): An Introduction to Map work and Practical Geography. University Tutorial, London.
2. Singh, L.R. and Singh, R., (1973): Map work and Practical Geography. Allahabad.
3. <http://moef.gov.in/moef/index.html>
4. <https://www.windy.com/?19.075,72.886,5>
5. Khan MD. ZulfequarAhmad : Text Book of Practical Geography, Concept Publishing Company, New Delhi, 1998
6. Mishra, R.P. and Ramesh A. : Fundamentals of Cartography, Concept Publishing Company, New Delhi, 2000
7. Monkhouse F.J. and Wilkison, H.R.: Maps and Diagrams, Mathuen. London, 1971.
8. Negi. , Dr. Balbir Singh : Practical Geography, Kedar Nath Ram Nath, Meerut, Delhi.
9. Raisz, E.: Principals of Cartography, McGraw Hill Book Com., Inc, New York, 1962.

10. Robinson, A.H. and Sale, S.D.: Elements of Cartography, John Wiley and Sons, Inc, New York, 1969.
11. Saha, Pijushkanti and Basu Partha : Advanced Practical Geography – A Laboratory Manual Books and Allied (P) Ltd, Kolkata. 2010.
12. Sarkar, Ashis : Practical Geography: A systematic Approach, Orient Longman limited, Calcutta, 1997.
13. Singh, Gopal : Map work and Practical Geography Vikas Publishing House Pvt. Ltd. New Delhi, 1996.
14. Singh, R and Kanaujia, L.R.S.: Map Work and Practical Geography, Central Book Depot, Allahabad.
15. Aher A. B., Chodhari A. P. & Bharambe S. N. Techniques of Spatial Analysis Prashant Publication Jalgaon 2015
16. Maurice Yeats, An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York, 1974.
17. P. Saha and P. Basu (2006): Advanced Practical Geography, Books and Allied Publication, Kolkata, India.
18. Khullar, Essentials of Practical Geography, New Academic Publishing Co, India.

# Shivaji University, Kolhapur

## B. Sc.-I

### DSC-III: Human Geography-III (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	II
<b>Name of Vertical Group</b>	:	DSC-III (V-1)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Human Geography-III</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 15 Hours= 30 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	40:10
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

The study of nature is vital. But without the study of the relationship of man with nature it is impossible to complete the study of Geography. Therefore, in the second semester, the concepts of Human Geography have been discussed. The introduction of Human Geography as a discipline and the components and distribution of population are the main parts of the paper. The distribution of population, theories of population growth and components of population, etc.

#### General Objectives of the Course:

1. To study the basics of Human Geography as a branch of Geography.
2. To study the concepts of man-environment relationship and the human races with racial groups.
3. To assess factors affecting on distribution of population.
4. To study of the Malthus's theory of population growth and selected components of population.

#### Course Outcomes:

By the end of the course:

1. The students will be familiar with the basics of Human Geography as a branch of Geography.
2. The students will have the knowledge of man-environment relationship and the human races with racial groups.

3. The students will be simply assessing the factors affecting on distribution of population.
4. The students will be aware with the Malthus's theory of population growth and selected components of population.

#### **Nature of Question Paper:**

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

### **Human Geography-III**

<b>Content of Modules</b>				
<b>Module No.</b>	<b>Module Name</b>	<b>Sub-module</b>	<b>No. of hours</b>	<b>Credit</b>
1	Introduction to Human Geography	1.1 Definition, nature and scope of human geography. 1.2 Branches of human geography 1.3 Concepts of man-environment relationship - determinism, possibilism and probabilism 1.4 Importance of Human Geography	15	01
2	Population	2.1 Population growth and distribution in India and the world. 2.2 Characteristics of Population: Birth rate, Death rate, Density and Literacy 2.3 Problem of over population of India and remedial measures. 2.4 Malthus theory of population	15	01

#### **Suggested Readings**

1. Bergwan, Edward E: Human Geography; Culture, Connections and Landscape, Prentice-Hall, New Jersey.1995.
2. Carr, M.: Patterns, Process and change in Human Geography. MacMillan Education, London, 1987.
3. Fellman, J.L.: Human Geography—Landscapes of Human Activities. Brown and Benchman Pub., U.S.A., 1997.
4. D.S. Lal: Climatology, Sharda Pustak Bhavan, Allahabad, 2010.
5. Majid Hussin; Human Geography, Sixth Edition, Book Emporium, Guwahati, 2020.

6. सवदी व कोळेकर; मानवी भूगोल, निराली प्रकाशन पुणे २०२०.
7. सवदी व कोळेकर; प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०२०.
8. दाते व दाते; प्राकृतिक भूविज्ञान. अनिरुद्ध पब्लिशिंग हाऊस, पुणे. २०२०.
9. आर. जी. जाधव; मानवी भूगोल. प्रारुप पब्लिकेशन, कोल्हापूर. २०१९.
10. मोरे व पगार; प्राकृतिक भूगोल. प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०१९.
11. शिंदे, चौरे, धुलगुडे व शिंदे ; मानवी भूगोल, फडके प्रकाशन कोल्हापूर २०२३.

# Shivaji University, Kolhapur

## B. Sc.-I

### DSC-IV: Human Geography-IV (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	II
<b>Name of Vertical Group</b>	:	DSC-IV (V-1)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Human Geography-IV</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 15 Hours= 30 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	40:10
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

As time passes, there are tremendous changes have been taken place on the earth surface due to modes of transportation. The human development is an important indicator to know the regional development and therefore it is essential to learn about HDI. The economic activities also change and also affect the development of the settlement. The overall growth and development of any settlement is based on the nature of economic activities. Therefore, the types of economic activities have been included. The economic growth reflects in the settlements and their citizens.

#### General Objectives of the Course:

1. To study the economic activities and their importance.
2. To explore mode of transport and discover the different types of jobs we have today.
3. To study the basics of Human Development Index (HDI)
4. To study the theories related to the agricultural land use and location of industries.

#### Course Outcomes:

By the end of the course:

1. The students will be get knowledge of economic activities and their importance.
2. The students will be familiar with mode of transport and discover the different types of jobs we have today.
3. The students will have detail information of the basics of Human Development Index (HDI)
4. The students will be aware with the theories related to the agricultural land use and location of industries.

**Nature of Question Paper:**

The student's examination and evaluation methods are as per the guidelines of the Shivaji University, Kolhapur.

- Internal evaluation should be based on Home Assignment/Unit Test/Case Study

**Human Geography-IV**

Content of Modules				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Transportation and Human Development Index (HDI)	1.1 Modes of Transportation 1.2 Accessibility and Connectivity (Google Map) 1.3 Weber Theory of Industrial Location 1.4 Components of HDI and Importance of HDI	15	01
2	Economic Activities	2.1 Early Economic activities of mankind 2.2 Primary Activity: Classification and Importance 2.3 Secondary Activity: Classification and Importance 2.4 Tertiary, Quaternary and Quinary Activities: Classification and Importance 2.5 Von Thunen's Theory of Land Use	15	01

**Suggested Readings**

1. Dayal, P; A Text book of Geomorphology. Shukla Book depot, Patna, 1996.
2. Dury, G.H. : The Face of the Earth, Penguins, 1980.
3. Critchfield, H : General Climatology, Prentice-Hall, New York, 1975.
4. ICSSR: A Survey of Research in Physical Geography. Concept, New Delhi, 1983.
5. D.S. Lal: Climatology, Sharda Pustak Bhavan, Allahabad, 2010.
6. Singh, S. : Geomorphology, Prayag Pustakalaya, Allahabad, 1998.
7. सवदी व कोळेकर; प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०२०
8. दाते व दाते; प्राकृतिक भूविज्ञान. अनिरुद्ध पब्लिशिंग हाऊस, पुणे. २०२०



9. आर. जी. जाधव; प्राकृतिक भूगोल. प्रारूप पब्लिकेशन, कोल्हापूर. २०२०
10. सवदी व कोळेकर; प्राकृतिक भूगोल आणि भूरूपशास्त्र. डायमंड प्रकाशन पुणे. २०१४
11. मोरे व पगार; प्राकृतिक भूगोल. प्राकृतिक भूगोल. निराली प्रकाशन पुणे. २०१९

## Shivaji University, Kolhapur

### B. Sc. Part-I

#### DSC Practical -II: Representation of Geo Data-II (Geography) as per NEP 2020

<b>Name of the Programme</b>	:	B. Sc. (GEOGRAPHY)
<b>Class</b>	:	B. Sc. I
<b>Semester</b>	:	II
<b>Name of Vertical Group</b>	:	DSC P-II (V-1)
<b>Course Code</b>	:	
<b>Course Title</b>	:	<b>Practical- II: Representation of Geo Data-II</b>
<b>Total Credit</b>	:	02
<b>Workload</b>	:	02 credit X 30 Hours= 60 hours in semester
<b>Duration</b>	:	Semester
<b>Medium of instruction</b>	:	English
<b>Eligibility of Admission</b>	:	As per eligibility criteria prescribed by the University
<b>Examination of Pattern</b>	:	00 : 50
<b>Nature of Question Paper</b>	:	As per university guidelines

#### Preamble:

Practical work is the most important part of Geography. In present syllabus, the theoretical knowledge in Economic and settlement Geography has been given for the sake of application of information through practical. The course syllabus includes two and three dimensional as well as quantitative techniques for economic and settlement data to present real world.

#### General Objectives of the Course:

1. To study the pictorial maps.
2. To provide practical knowledge regarding real presentation of spatial unit of earth surface.
3. To study the quantitative techniques related to settlements.
4. To prepare students with contemporary modern tools and techniques for different basic conditions of settlements.

#### Course Outcomes:

By the end of the course:

1. The students will know the concept of pictorial maps and its practical applications.
2. The students will be getting practical knowledge regarding real presentation of spatial unit of earth surface.
3. The students will be applying their knowledge of the quantitative techniques related to settlements.

4. The students will be prepared with contemporary modern tool and techniques (Google Earth) for different basic conditions of settlements.

### Practical: Representation of Geo Data-II

Content of Modules				
Module No.	Module Name	Sub-module	No. of hours	Credit
1	Representation of Statistical data	1.1 Divided Circle 1.2 Proportional Circle 1.3 Proportional Square 1.4 Proportional Sphere 1.5 Choropleth Map and Dot Map	30	01
2	Representation of Settlement data	2.1 Determination of Central places 2.2 Nearest Neighbour Analysis 2.3 Road Density 2.4 Road Connectivity ( $\alpha$ , $\beta$ and $\gamma$ ) 2.5 Determination of site, situation and pattern of settlement using Google Earth	30	01

### Suggested Readings

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