

CLASS 1

I. Introduction

A. Astronomy (definition): The scientific study of the universe and of objects that exist naturally in space, such as the moon, the sun, planets, and stars. (*Cambridge Dictionary*)

B. Why, from a Jewish perspective, should we study Astronomy?

1. To develop an awareness of, and appreciation for, Hashem by seeing His wisdom in the world.

a. Tanach

Tehilim 19:2

הַשָּׁמַיִם מְסַפְּרִים כְּבוֹד אֱלֹהִים וּמַעֲשֵׂה יְדֵיו מְגִיד הָרָקִיעַ.

The heavens relate the glory of Hashem, and the sky tells of the work of His hands.

Tehilim 104:24

מָה רַבּוּ מַעֲשֵׂיךָ ה' כָּל־מַחֲמָה עָשִׂיתָ מְלָאָה הָאָרֶץ קִנְיָנָהּ.

How great are Your works, Hashem! You have made them all with wisdom; the earth is full of Your possessions!

Yeshayah 40:26

שֹׂאוּ מְרוֹם עֵינֵיכֶם וּרְאוּ מִי בָרָא אֱלֹהֵי הַמּוֹצִיא בְּמִסְפָּר צְבָאָם לְכֹל־שֵׁם יִקְרָא מְרֹב אוֹנִים וְאִמִּיץ כֹּחַ אִישׁ לֹא נֶעְדָּר.

Lift up your eyes on high and see, Who created these, Who takes out their host by number; all of them He calls by name; because of His great might and because He is strong in power, no one is missing.

b. Mishnah, Avos 6:1

כָּל מַה שֶּׁבָּרָא הַקָּדוֹשׁ בְּרוּךְ הוּא בְּעוֹלָמוֹ, לֹא בָּרָאוֹ אֶלָּא לְכְבוֹדוֹ, שְׁנֵאֲמַר: כָּל הַנִּקְרָא בְּשֵׁמִי וְלְכְבוֹדִי, בָּרָאתִיו וְצִרְתִּיו אִף עֲשִׂיתִיו.

Everything that G-d created in His world, He did not create but for His glory. As is stated (Yeshayah 43:7): "All that is called by My name and for My glory, I created it, formed it, also I made it."

Alei Shur, Rav Shlomo Wolbe, vol. II, p. 235

לפי דרכנו נתרגם ברייתא זו במלים שלנו: "כל מה שברא הקב"ה בעולמו לא בראו אלא להתגלות בו", זוהי האמת: כל הבריאה כולה, מהעליון שבנבראים עד התחתון, הבריאה בכללה ובכל פרטיה – הכל הוא אך ורק התגלות!

According to our approach, we may translate this Tannaic teaching (in Avot) in our words as follows: “Everything that G-d created in His world, He did not create but *to reveal Himself*...” This is the truth: every part of the entirety of Creation, from the greatest of the creations to the smallest, the Creation in its entire form and in all of its details – it is all nothing but a revelation of the greatness of G-d!

c. Gemara, Shabbos 75a

תסתיים אר"ש בן פזי א"ר יהושע בן לוי משום
בר קפרא כל היודע לחשב בתקופות ומזלות
ואינו חושב עליו הכתוב אומר ואת פועל ה'
לא יביטו ומעשה ידיו לא ראו א"ר שמואל
בר נחמני א"ר יוחנן ב"מנין שמצוה על האדם
לחשב תקופות ומזלות שנאמר ושמרתם
ועשיתם כי היא חכמתכם ובינתכם לעיני
העמים איזו חכמה ובינה שהיא לעיני העמים
הוי אומר זה חשבון תקופות ומזלות: י"הצד

Rebbi Yehoshua ben Levi in the name of Bar Kapara said: Anyone who knows how to calculate the astronomical seasons and the movement of the constellations but does not do so, the verse says about him: "... and they do not notice the acts of Hashem, and they do not see the work of His hands" (Yeshayah 5:12).

Rav Shmuel bar Nachmani in the name of Rebbi Yochanan said: What is the source that it is a Mitzvah upon the person to calculate the astronomical seasons and the movement of the constellations? For it says, "And you shall keep [them] and do [them], for that is your wisdom and your understanding in the eyes of the nations [who will hear all these statutes and say, 'Only this great nation is a wise and understanding people']". What is the wisdom and understanding which is [recognized and respected] in the eyes of the nations? This is to say, this is the calculation of the astronomical seasons and the movement of the constellations.

d. Rabbeinu Yonah (d. 1263), Berachos (21b of the pages of the Rif)

"כאילו מקבל פני שכינה". מפני שהקב"ה אע"פ שאינו נראה לעין נראה הוא על ידי גבורותיו ונפלאותיו כענין שנאמר אכן אתה אל מסתתר אלקי ישראל מושיע כלומר אף על פי שאתה מסתתר אתה הוא אלקי ישראל שעשית עמהם כמה

נפלאות ואתה מושיע בכל עת ובכל שעה ועל ידי תשועתך רואים אותך בני אדם ואתה מתגלה להם ומכירי אותך וג"כ בכאן ע"י מה שמחדש החדשים הוא מתגלה לבני אדם והוא כאלו מקבילין פניו.

[Gemara: Said Rabbi Yochanan, "Whoever recites a blessing over the new moon] is considered as if he greets the Divine presence.

This is because the Holy One, blessed is He, even though He is not seen by the eye, He is seen through His mighty acts and wonders, as it is said: "Indeed, You are G-d Who conceals Himself, the G-d of Israel, the Savior" (Yeshayah 45:15). That is to say, even though You conceal Yourself, You are the G-d of Israel Who has performed many wonders for them, and You are their Savior at all times and in every moment. Through Your salvation, people perceive You, and You reveal Yourself to them, and they come to recognize You. So, too, here – through the renewal of the months, He reveals Himself to humankind, and it is as though they are encountering His presence.

e. Rambam (1138-1204)

Hilchos Yesodei ha'Torah 2:1-2 (see also 4:12)

א) הא-ל הנכבד והנורא הזה מצוה לאהבו וליראה אותו שנאמר "וְאֶהְבֶּתָּ אֶת ה' אֱלֹהֶיךָ" (דברים ו ה). ונאמר "אֶת ה' אֱלֹהֶיךָ תִירָא" (ב) וְהִיאָהּ הִיא הַדֶּרֶךְ לְאַהֲבָתוֹ וְיִירָאָתוֹ. בְּשִׁעָה שִׁיתְבוֹנֵן הָאָדָם בְּמַעֲשָׂיו וּבְרוֹאָיו הַנִּפְלְאִים הַגְּדוֹלִים וְיִירָאָה מִהוֹן חֲכָמָתוֹ שֶׁאֵין לָהּ עֶרְךָ וְלֹא קֶץ מִיד הוּא אוֹהֵב וּמְשַׁבֵּחַ וּמְפָאֵר וּמְתַאֲוֶה גְּדוֹלָה לִידַע הַשֵּׁם הַגְּדוֹל. כְּמוֹ שֶׁאָמַר דָּוִד "צִמְאָה נַפְשִׁי לֹא-לֵהִים לֹא-לִחַי" (תהילים מב ג). וְכִשְׁמַחְשֵׁב בְּדַבָּרִים הָאֵלּוּ עֲצֻמוֹ מִיד הוּא נִרְתָּע לְאַחֲרָיו וַיִּפְחַד וַיִּדַּע שֶׁהוּא בְּרִיָּה קְטָנָה שְׁפֵלָה אֲפֵלָה עוֹמֶדֶת בְּדַעַת קָלָה מְעוּטָה לִפְנֵי תַמִּים דְּעוֹת. כְּמוֹ שֶׁאָמַר דָּוִד "כִּי אִירָאָה שְׁמִיךָ מַעֲשֵׂי אֲצַבְעֶיךָ... מָה אֲנוֹשׁ כִּי תִזְכְּרֶנּוּ" (תהילים ח ד-ה). וּלְפִי הַדָּבָרִים הָאֵלּוּ אֲנִי מְבָאֵר כָּלֵלִים גְּדוֹלִים מְמַעֲשֵׂה רַבּוֹן הַעוֹלָמִים כִּדִּי שִׁיחִיו פֶּתַח לְמַבִּין לְאַהֲבָתָא הַשֵּׁם. כְּמוֹ שֶׁאָמְרוּ חֲכָמִים בְּעִנְיַן אַהֲבָה שְׁמוֹתָיָהּ כִּדְ אִתְּהָ מְכִיר אֶת מִי שֶׁאָמַר וְהִיא הַעוֹלָם.

- א) *It is a mitzvah to love and fear the revered and awesome G-d, as it says, "And you shall love Hashem, your G-d" (Devarim 6:5), and as it says: "Hashem, your G-d, you shall fear" (Devarim 6:13).*
- ב) *What is the path [to attain] love and fear of Him? When a person contemplates His wondrous and great deeds and creations and appreciates His infinite wisdom that surpasses all comparison, he will immediately love, praise, and glorify [Him], yearning with tremendous desire to know His great name, as David stated: "My soul thirsts for Hashem, for the living G-d" (Tehillim 42:3). When he reflects on these matters themselves, he will immediately recoil in awe and fear, appreciating how he is a tiny and lowly creature standing with his limited wisdom before He Who is of perfect knowledge, as David said, "When I see Your heavens, the work of Your fingers... [I wonder] what is man that You should recall Him" (Tehillim 8:4-5).*

Based on these concepts, I will explain important principles regarding the deeds of the Master of the worlds so that there will be an opening for a person of understanding to [develop] love for G-d, as our Sages said regarding love: "In this manner, you will recognize He who spoke and thereby brought the world into being."

Rambam, Sefer ha'Mitzvos #3

היא הציווי שנצטוונו על אהבתו יתעלה, והוא: שנתבונן ונסתכל במצוותיו וציווייו ופעולתיו, כדי שנשיגהו ונתענג בהשגתו תכלית התענוג - וזוהי האהבה המצווה [עלינו].

The third mitzvah is that we are commanded to love G-d, and that is: that we will contemplate and closely examine His mitzvos, His commandments, and His works, in order to understand Him, and through this understanding to achieve the ultimate experience of pleasure. This is the goal of the commandment to love G-d....

Teshuvos ha'Rambam #150

קנ

השאלה ה"ב
שאלה

במה שאמרו¹ "היודע לחשב בתקופות ומזלות ואינו מחשב וכו'", איך יהיה זה החישוב ומה יצא מזה והאם זוהי הלכה אם לא?

התשובה

חישוב תקופות ומזלות הוא חכמת התכונה בכלל. ואומרים "כל היודע ואינו מחשב", ר"ל, מי שיש ביכלתו להבין אותה ולו שכל טוב וקרא הקדמות זאת החכמה ואינו עוסק בה. ומה שאמרתם "מה יצא מזה", כבר באר ר' מאיר בברייתא² ואמר "הסתכל במעשיו, שמתוך כך אתה מכיר את מי שאמר והיה העולם". ומתחלת חבורנו³ הגדול יתבארו אלו העיקרים.

קנ

אלמסאלה אל"ב
שאלה¹

פי קולחם היודע לחשב בתקופות ומזלות ואינו מחשב וכו' כיף יכון דלך אלחשוב ואיש יכרג מן דלך והל דלך הלכה אם לא.

אלגואב

חשוב תקופות ומזלות הו עלם אלהיאה בגמלתה וקו' כל היודע ואינו מחשב יעני מן הו קדיר עלי פהם² דלך ולה דהן צאלח³ וקרא מקדמאת דלך אלעלם ולא ישתגל בה ואמא קולכם איש יכרג מן דלך פקד בין ר' מאיר פי אלבריתא וקאל הסתכל במעשיו שמתוך כך אתה מכיר את מי שאמר והיה העולם ומן צדר תאליפנא⁴ אלכביר תתבין הדיה⁵ אלאצול. והדא גמלה מא סאל פיה הר'

Question #32: Concerning what the Sages said (Shabbos 75a): "Anyone who knows how to calculate the astronomical seasons and the movement of the constellations but does not do so, the verse says about him...", what exactly is this calculation, what results from it, and is it considered a requirement of Halachah or not?

Answer: The calculation of the *tekufos* (astronomical seasons) and *mazalos* (movement of the constellations) is part of the science of astronomy. When the Sages said, “Anyone who knows and does not calculate,” they meant one who has the ability to understand it, possesses a good intellect, and has studied the foundational principles of this field of wisdom, but nonetheless neglects to engage in it.

As to your question, “What comes from this?” – This has already been explained by Rabbi Meir in the Beraisa, “From this you come to recognize the One Who spoke and brought the world into being.” And from the beginning of our large composition (see Hilchos Kiddush ha’Chodesh, ch. 6 and onward) these principles will be explained.

f. Rav Yerucham Lebovitz zt’l (1875-1936, quoted in *Pirkei Kinyan Da’as* (Rav Shlomo Wolbe zt’l, p. 60))

הדברים מגלים לנו נוראות האור המאיר לנו. ואמר אדמו"ר זי"ע על ברכת
יהמאיר לעולם כולו בכבודו: אם אדם היה מתבונן מהו האור המאיר לנו,
היה בורח מהבריאה מרוב פחד, כי אטו תלו נורות בשמים? הלא זה כבודו
ית' בעצמו המאיר!

Our master and teacher (Rav Yerucham) said regarding the blessing, “*Blessed are You, Hashem, Who illuminates the entire world through His glory*” (end of the blessing of *ha’Mapil*): If a person would contemplate what this light [of the sun] is that shines for us, he would flee from the world from sheer dread, because, after all, are they simply lightbulbs suspended in the sky? Behold – it (the phenomenon of the sun) is the glory of Hashem Himself which illuminates the world!

g. Rav E. E. Dessler, Michtav Me’Eliyahu

Vol. I, p. 180 (English version, *Strive for Truth*, vol. I, p. 246):

... הכל ברצונו נעשה. מה נואלו האנשים אשר לא ילמדו ולא יתבוננו בגדולתו
יתברך, אשר נראה בחוש מרבו העולמות והברואים בכל פרט ופרט, כי אילו
הסתכלו הזה היו ניצולים מלהכשל בכפירה של המבט הטבעי אשר הורגלו בו, והיא
מאושרים בב' עולמות ממש.

... All is done according to His will. We are very foolish if we close our
eyes and refuse to reflect on God’s infinite greatness. This so obvious to
anyone who takes time to consider the multiplicity of worlds and
creatures and the breathtaking beauty and complexity of their structure.
If only we would not just see but observe and note all these wonders we
should escape the cold heresy of “natural causes” to which we have
become so habituated. We would then ensure our happiness in this world
and the next.

Vol. III, p. 164 and vol. I, p. 181 (*Strive for Truth*, vol. I, p. 147):

... יש מסתכל לתוך הבית דרך חור מנעול שבדלת, ויראה עט כותבת, ולא יראה את
האדם – וידמה שהעט כותבת בעצמה. כך הוא הכופר, שיחשוב שהטבע פועלת
בעצמה. אבל כשפותח הדלת, יראה את האדם הכותב; כך המאמין יראה שה'

יתברך הוא העושה והמסבב את הכל, וכל הסיבות ומעשי בני אדם הם אצלו כמו עט ביד הכותב, אשר ישתמש בכולם לתכלית אשר ירצה.... עבורו היא מצות האמונה – ללמוד לדעת שיש מנהיג לטבע, ולדעת זאת באותה מדה של ודאות כמו שודע האדם במשל הנ"ל שלא העט כותב מעצמו אלא האדם האוחז בעט....

Someone looks through the keyhole of a door into a room and all he can see is a pen moving over paper. He concludes that the pen is writing by itself. This is the standpoint of the one who denies Hashem and believes that nature is an independent power. But when the door is opened, the person sees the writer. This corresponds to the attitude of the believer who recognizes that Hashem is the true cause of all events... they are for him nothing but the pen in the hand of the writer.... For him the mitzvah of Emunah (faith) is to learn to know that there is a Director of nature, and to know it with the same degree of certainty as the person in the above metaphor knows that it is not the pen that writes by itself, but rather the person who is holding the pen....

Vol. V, pp. 365-366

תכלית הבריאה היא גילוי כבוד ה' (אבות סוף פ"ו). כל פרט ופרט שבה יכול להיות כלי לגילוי זה. הגילוי שיש בו בכח – זהו קיומו ומציאותו של כל פרט. גילוי כבוד ה' תלוי בראיית האדם. מה שנצרך יותר בעולם לחיי האדם, נמצא יותר. (אור נמצא יותר ממים, מים יותר מאוכל, אוכל יותר ממלבוש וכי' – ע"י חובות הלבבות שער הבחינה פרק ה.) וכן ברוחניות – הנצרך יותר לגילוי נמצא יותר. הטבע נמצא יותר מהנס, וא"כ מוכרח שיש יותר גילוי בכח בטבע מאשר בנס. מה כבוד ה' שאפשר לגלות בטבע? מתגלה בו תמידיות רצון ה' בקיום כל הנבראים, ועקביותו, והדייקנות המתמטית הנפלאה שבכל דבר מגדולי הגדולים – כגון גלקסיות, עד קטני קטנים – כמו אטומים.

The purpose of the Creation is to reveal the honor of Hashem (Avot 6:11, based on Yeshayah 43:7). Every single item in the world is able to be an instrument for this revelation.... The revealing of the Creator's honor depends on the vision of man.

The more something is needed in the world to sustain human life, the more available it is found. (Air is more available than water, water is more available than food, food is more available than clothing, etc.; see Chovos ha'Levavos, Sha'ar ha'Bechinah, ch. 5.) Similarly, in spirituality, that which is more needed is found more readily. Accordingly, the process of nature is found more than the process of miracle. This being the case, it follows that there is more potential revelation [of Hashem's honor] in nature than in a miracle. How do we see Hashem in nature? His constant, consistent will to sustain all of creation is revealed in nature, and in the wondrous, extreme mathematical precision that exists in every part of the natural world, from the largest of the large – such as the galaxies, to the smallest of the small – such as atoms....

h. A non-Torah source: Stephen C. Meyer, Ph.D., writes (see link to article and books at the end of this source page):

In recent years, many scientists have emerged as celebrity spokesmen for atheism. Richard Dawkins, Lawrence Krauss, Bill Nye, Michael Shermer, the late Stephen Hawking, and others have published popular books arguing that science renders belief in G-d unnecessary or implausible.... Yet, between message and reality, there is a major disconnect. Over the last century, important scientific discoveries have dramatically challenged science-based atheism....

All this underscores a growing disparity between public perceptions of the message of science and what scientific evidence actually shows. Far from pointing to "blind, pitiless indifference," the great discoveries of the last century point to the exquisite design of life and the universe and, arguably, to an intelligent Creator behind it all.

(See also Sir Isaac Newton (d. 1727): "This most beautiful system of the sun, planets, and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being." (Principia Mathematica, General Scholium)

Appendix 1: Is it a Mitzvah to study astronomy?

1) Ba'al Halachos Gedolos (800's CE), Mitzvah #77

(עז) וחישוב תקופות (דברים ד': ז').
(77) And the calculation of the seasons.

2) Sefer Yere'im (1100's CE), #260

סימן רס [קד]

חשוב תקופות. צוה הב"ה את ישראל שיחשבו תקופת (א) חמה ומולדות הלבנה דכתיב ב' ואתחנן ושמרתם ועשיתם כי היא חכמתכם ובינתכם לעיני העמים. ואמרינן בשבת פ' כלל [פ"ה] אמר רב שמואל בר נחמני א"ר יוחנן מניין שמצוה על האדם לחשוב תקופות ומולות שנאמר ושמרתם ועשיתם כי היא חכמתכם ובינתכם לעיני העמים ואיזהו חכמה שהיא לעיני העמים הוי אומר זה חישוב תקופות ומולות.

#260 Calculate the seasons. The Holy One, blessed be He, commanded Israel to calculate the solar seasons and the lunar conjunctions, as is written in Parshas Va'eschanan (Devarim 4:6), "For that is your wisdom and your understanding in the eyes of the nations," and we say in Shabbos, chapter Klal (75a): *Rav Shmuel bar Nachmani in the name of Rabbi Yochanan said: What is the source that it is a Mitzvah upon the person to calculate the astronomical seasons and the movement of the constellations? For it says, "And you shall keep [them] and do [them], for that is your wisdom and your understanding in the eyes of the nations...." What is the wisdom and understanding which is [recognized and respected] in the eyes of the nations? This is to say, this is the calculation of the astronomical seasons and the movement of the constellations.*

3) Sefer Mitzvos ha'Gadol (1200's), Mitzvos Aseh #47

צוה הקב"ה לחשב התקופות והמולדות הלבנה כדדרשינן במסכת שבת ב' כלל גדול [דף ע"ה] מזה המקרא ושמרתם ועשיתם כי היא חכמתכם ובינתכם לעיני העמים איזהו חכמה ובינה שהוא לעיני העמים זו היא חישוב תקופות ומולות לפי שבישול התבואות והפירות אחר תקופות החמה הם הולכים ועוד כי על ידי חישוב התקופות ומולדות יודע מתי יצטרך לעבר החדש ולעבר השנה כמו שני שמור את חדש האביב שיהא הפסח בחדש האביב וכתיב וחג האסיף תקופת השנה שיהא החג בזמן האסיף ותקופת השנה היא לחשבון החמה...

The Holy One, blessed is He, commanded to calculate the seasons, constellations, and lunar conjunctions, as we derive in Maseches Shabbos, chapter Klal Gadol (75a), from the verse, "And you shall keep [them] and do [them], for that is your wisdom and your understanding in the eyes of the nations" (Devarim 4:6). What is the wisdom and understanding which is [recognized and respected] in the eyes of the nations? This is the

calculation of the astronomical seasons and the movement of the constellations. For the ripening of grain and fruits follows the solar seasons. Moreover, through calculating the solar seasons and lunar conjunctions, one knows when it is necessary to intercalate the month or the year, as it says, “Guard the month of spring” (Devarim 16:1), meaning that Pesach must fall in the spring, and it is written, “... and the festival of the ingathering at the turn of the year” (Shemos 34:22), meaning that the festival (of Shavuot) must be at the time of harvest, and the “turn of the year” refers to the solar cycle....

4) Rambam, Sefer ha'Mitzvos, Shores 2

ובזה הדרך בעצמו מנו חשוב תקופות מצוה בעבור הדרש הבא בהיא חכמתכם ובינתכם והוא אמרם (שבת ע"ה) איזו היא חכמה ובינה שהיא לעיני העמים הוי אומר זה חשוב תקופות ומזלות...

... [Quoting the Ba'al Halachos Gedolos:] And in this exact same way, they counted the calculation of the seasons as a Mitzvah because of the teaching from, “It is your wisdom and your understanding” (Devarim 4:6). And that is what they said (Shabbos 75a): “‘For that is your wisdom and your understanding in the eyes of the nations’ – What is the wisdom and understanding which is [recognized and respected] in the eyes of the nations? This is to say, this is the calculation of the astronomical seasons and the movement of the constellations.”

5) Hasagos ha'Ramban, Sefer ha'Mitzvos, Shores 1

... כי זו אינה מצוה מדבריהם אלא לידועים בה הוא מצוה על דרך הזירוז שישתכלו בה ויודיעו עתידות לשאר האומות...

... For this is not a rabbinic Mitzvah, except for those who are knowledgeable in it, it is a Mitzvah in the manner of encouraging them to study it and inform the other nations [and demonstrate their wisdom] about the future [trajectories]....

Appendix 2: Astrology

1. The difference between astronomy and astrology

2. The Halachic view on astrological study

a. The view of the Rambam

1) Hilchos Avodah Zarah 11:8-9 (see also Hilchos Teshuvah 5:4)

ח) אִיזְהוּ מְעוּנָן? אֵלּוּ נוֹתְנֵי עֵתִים שְׂאוּמְרִים בְּאַצְטְגִּינוֹת "יּוֹם פְּלוֹנִי טוֹב", "יּוֹם פְּלוֹנִי רָע", "יּוֹם פְּלוֹנִי רָאוי לַעֲשׂוֹת בּוֹ מְלָאכָה פְּלוֹנִית", "שָׁנָה פְּלוֹנִית אוֹ חֹדֶשׁ פְּלוֹנִי רַע לְדַבֵּר פְּלוֹנִי".

ט) אִסּוּר לַעֲוֹן אִף עַל פִּי שְׁלֹא עָשָׂה מַעֲשֶׂה אֲלֹא הוֹדִיעַ אוֹתָן הַכֹּזְבִּים שֶׁהַפְּסִילִים מִדְּמִין שֶׁהֵן דְּבָרֵי אֱמֶת וְדְבָרֵי חֲכָמִים. וְכָל הָעוֹשֶׂה מִפְּנֵי הָאַצְטְגִּינוֹת וְכֵן מְלָאכָתוֹ אוֹ הַלִּיכָתוֹ בְּאוֹתוֹ הָעֵת שֶׁקִּבְּעוּ הַזִּבְרֵי שְׁמַיִם הָרִי זֶה לֹקֶה שְׁנֵאֲמַר "וְלֹא תַעֲוִנוּ"....

8) Who is a fortuneteller? A person who tries to predict auspicious times, using astrology and saying, "This day will be a good day," "This day will be a bad day," "It is appropriate to perform a particular task on a certain day," or "This year/This month will not be opportune for this particular matter."

9) It is forbidden to tell fortunes. This applies even though one does not perform a deed, but merely relates the falsehoods which the fools consider to be words of truth and wisdom. Anyone who performs a deed because of an astrological calculation or arranges his work or his journeys to fit a time that was suggested by the astrologers is liable for lashes, as is stated, "Do not tell fortunes" (Vayikra 19:26)....

2) Iggeret Teiman (1172)

... אבל מה שראיתך משתוקק אליו מחכמת הכוכבים וקבוציהם שהם קוראין בלשון ערב שעברו מהם מה שאתה מצפה כל זה הסר אותה מלבך ונקה דעתך ממנו ורחץ שכלך כמו שרוחצים הבגדים המטונפים מטנופם לפי שהם דברים שאין בהם ממש ואינם אמת אצל החכמים השלמים ואפילו לשאינם מאמינים בתורה כ"ש למקבלי התורה והפסד דבר זה מבואר מאוד בטענות שכליות אמתיות אין זה מקום לזכרם אבל שמע שמץ דבר ממה שבא בכתוב בענין זה....

I note that you are inclined to believe in astrology and in the influence of the past and future conjunctions of the planets upon human affairs. You should dismiss such notions from your thoughts. Cleanse your mind as one cleanses dirty clothes. Accomplished scholars whether they are religious or not, refuse to believe in the truth of this science. Its postulates can be refuted by real proofs on national grounds. But this is not the place to enter into a discussion of them. But listen now to a sampling of what the Scripture has to say about this matter.... (Translation of Boaz Cohen, 1952).

3) Iggeret Marseille (1194) (see below, Additional Resources, for full text.)

4) Shemoneh Perakim, ch. 8 (see below, Additional Resources)

b. The View of the Ramban and Nimukei Yosef

1) Nimukei Yosef, Sanhedrin 65b (end of ch. 7)

... וכהאי גוונא שרי כמו שנהגו לישא נשים במילואה של לבנה לסימן טוב וכן אתה אומר בכוכבים שלא אסרו אלא לקבוע להם סימן לעצמו ולנחש בהם אבל מה שאדם מכיר במערכת הכוכבים ומהלכן כגון אלו הוברי שמים החוזים בכוכבים אין זו בכלל נחש שזו חכמה גדולה וגזירה שגזר הקב"ה מששת ימי בראשית להנהיג עולמו בכך על כן יתפלל כל חסיד לבטל ממנו גזרת המזל כי מאת אדון הכל בא הכל ובידו לעשות ולשנות כחפצו ומצינו ברבי עקיבא (שבת דף קנו.) במאי דאמרי ליה כלדאי אברתיה והוה דאיג אמילתא טובא ולבסוף נעשה להן נס בזכות הצדקה ומיהו רז"ל הזהירו לבל ישים אדם מחשבתו באלו הדברים ויתלה אדם עצמו במי שאמר והיה העולם והוא בחסדיו יציל עבדיו מפגע רע ואמר על זה (פסחים דף קיג.) מנין שאין שואלים בכלדאי תי"ל תמים תהיה עם ה' אלהיך והרמב"ם ז"ל כתב שאף חזיון הוברי שמים בדרך החכמה בכלל נחש הוא ואינו מחוור.

... And this type of thing is permitted, such as how it is customary to get married when moon is full as a good omen. Likewise, we say about the stars, that it is forbidden only to make an omen for oneself with them, and to practice divination with them. But what a person recognizes in the arrangement of the stars and their trajectories, such as those astrologers who observe the stars, this is not at all divination, but rather great wisdom and a decree that the Holy One, blessed be He, ordained from the six days of Creation to govern His world by this. Therefore, every pious person should pray to annul from himself the decree of fate, because everything comes from the Master of all, and in His hand is the power to do and to change according to His will. And we find about Rabbi Akiva (Shabbos 156a), about what the Chaldean astrologers said about his daughter (that she would die), and he was very concerned for the matter, and in the end a miracle was done for them in the merit of the mitzvah of charity [that she performed]. However, our Sages warned not to place one's mind on these things, but rather to depend on the One Who said, "And the world shall exist," and He, in His kindness, will save His servants from evil. And about this it is said (Pesachim 139a), "From where do we know that one should not seek information from the astrologers? It says, 'Be wholehearted with Hashem your G-d.'" But the Rambam, may his memory be blessed, wrote that even the predictions of the astrologers, by the way of their science, are included under forbidden divination, but his view is not correct [in my opinion].

2) Ramban, Devarim 18:9, 13

e. Shulchan Aruch, Yoreh Deah 179:1

קעט שלא לבשה לעונן ולגחש. וכו' יש סע"פ :
א אין שואלין בחו"מ בכובעים ולא בגדלות :
 הגה [א] משום שנאמר תמים תהיה עם ה' אלהיך (ב"י בשם תוספות)
 דע"פ ובשם ספר [ג] וכו' (א) דאסור לשאול (ב) בקוסמים ומנחשים (פסקי מהרא"י סימן צ"ו) :
ב ויד' נהגו ב' שאין מתחילין (א) בב' ובד' (ה) וואין נושאין נשים אלא במילוי הלבנה :
 הגה [י] ולכן נהגו ג"כ להתחיל ללמוד ברא"ח כי אע"פ שאין ניהוש יש סימן (סמ"ק סימן קל"ו) [י] כמה שלום
 יודע שהוא כנגד המזל לא יעשה ולא יסמוך על הנס ב' אלא שאין לחקור אחר זה משום תמים תהיה (תשובת
 רמב"ן סימן רפ"ו) כמו שנתבאר :

א) We may not inquire of the star-gazers.... *Rema*: This is because it is written, "Be wholehearted with Hashem your G-d...."

Additional resources for Class 1:

The Rambam's Letter to the Jews of Marseilles (printed in Iggerot ha'Rambam, available at https://www.sefaria.org.il/Iggerot_HaRambam), translation by Rabbi Dr. Leon Stitskin (available at <https://traditiononline.org/from-the-pages-of-tradition-maimonides-unbending-opposition-to-astrology/>). See below for full English text.

"How Science Stopped Backing Atheists and Started Pointing Back to God," Stephen C. Meyer, Ph.D.: <https://www.newsweek.com/how-science-stopped-backing-atheists-started-pointing-back-god-opinion-1724448>. See also his books, *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* (HarperOne, 2013), and *Signature in the Cell: DNA and the Evidence for Intelligent Design* (HarperOne, 2009), and *The Return of the God Hypothesis* (HarperOne, 2021).

Additional readings:

1) The Rambam's Letter to the Jews of Marseilles (translated by Rabbi Dr. Leon Stitskin)

Several intimate wise friends of mine in Marseilles, well-versed in Jewish law and legal matters, put to me several pertinent questions. May the Almighty protect them and increase their wisdom, magnify and glorify their erudition, and vouchsafe His abundant blessings unto all their endeavors. The prayers and heartwarming solicitude of Moses Maimonides for their well-being bears testimony to the purity of their souls and their sincere pursuit of wisdom and understanding in order to rise to a high level of authentic knowledge and discover "acceptable words written in an agreeable script, even words of truth" (Koheles 12:10). May the Lord's grace abide with them and help them to disclose the mysterious and straighten out every convexity! Amen.

Your question, although it has many ramifications and subdivisions, may be reduced to one basic issue: the problem of the astrologers, the star gazers. Apparently, my work *Mishneh Torah* on the laws of the Torah has not reached you yet; otherwise you would have known my opinion on the questions you posed, as I have expounded upon them in the chapter on Idolatry and pagan statutes. I am certain, however, that my work will reach you before this reply, as it has spread already to the Island of Sicily as well as to the East, West, and Yemen. Nevertheless, I wish to respond to you directly and elucidate the issues you raised.

Know, my masters, that no man should believe anything unless attested by one of three principles: first, rational proof as in mathematical sciences; secondly, the perception by one of the five senses—for instance, the judgment of color by one's eyes, taste by the tongue, touch to distinguish between hot and cold, hearing between clear and confused sounds, and smell between that which is distasteful or pleasant; and thirdly, tradition derived from the prophets and the righteous. It is accordingly incumbent upon every wise person to investigate his doctrinal beliefs and classify them according to one of the three basic sources from which they are drawn, namely tradition, sensation, or rational insights. One who grounds his belief in anything other than one of these guiding principles is described in Scripture: "The simple believeth every word" (Mishlei 14:15).

Moreover, you should know that some misguided people wrote thousands of books on the subject, and many ignorant people wasted their precious years pouring over them, mistaking vanity for knowledge and ascribing consummate wisdom to their authors. There seems to be a fatal disease and abysmal mischief among most people—with the exception of a select, divinely inspired remnant—that whatever is found in books is instantly accepted as truth, especially if the books are ancient. If the books are used extensively, the impulsive reader immediately construes them to be works of wisdom, reasoning that the pen never belies its author, nor does one engage in the art of writing in vain. However, this kind of involvement in false astrological works, whose notions are essentially pagan, led to the loss of our kingdom, the destruction of our Holy Temple, and extended the duration of the exile to

the present day. Our ancestors sinned and disappeared, for they strayed after false notions, ascribing to them purposeful ends while neglecting the arts of martial defense and government. No wonder the prophets referred to them as ignorant and foolish. They were surely correct in this, for they pursued "vain things which cannot profit nor deliver because they are vain" (Shmuel I 12:21).

Know, my masters, that I investigated these matters extensively. My early training included knowledge derived from the movement of the stars, such as predictions regarding impending international and national events or the well-being of an individual person. I also read extensively about all pagan practices. There was not a single book translated into Arabic on the subject that I have not studied and investigated in depth. From these works, I derived a rationale for all the mitzvot, in contrast to those who maintained that mitzvot are just dogmatic decrees with no deeper meaning. I have written a large work on the subject in Arabic, expounding upon every mitzvah, but this is not my intention here. Let me therefore return to the subject you inquired about.

You should realize that all the assumptions of the astrologers with regard to the forecasting of impending events or the determination of one's destiny by the constellation at the time of one's birth are irrational superstitions devoid of any scientific basis. I have clear, flawless proofs invalidating their essential theories. For one thing, we should note that none of the Greek thinkers—who were surely authentic scientists—ever engaged in such notions or wrote any treatises on the subject. They never made the mistake of calling astrology a science, as did the Chaldeans, Egyptians, and Canaanites, who even regarded it as a fundamental doctrine of their religion. The Greek philosophers, who were involved in almost all scholarly disciplines, utterly repudiated these notions, root, branch, and all. The Persian scholars also regarded the astro-deterministic concepts of the Chaldeans, Egyptians, and Canaanites as deceptions.

It should be pointed out that the reason we do not believe the proponents of this theory is not simply because their concepts lack sufficient evidence for validation, but because we possess such clear and flawless proofs to the contrary that their notions are utterly repudiated. It is therefore incumbent upon us not to accept their beliefs, which only a simpleton—or someone who wishes to deceive others—would adhere to.

You should know, however, my masters, that there is an authentic wisdom concerning the celestial bodies, which consists in knowing the form of the spheres, their number, measurement, the course of their movement, the different velocities of their motions, their deflection toward north or south, their revolution eastward and westward, the orbit of every star, and the courses they traverse. These notions and others are contained in large volumes composed by Greek, Persian, and Indian scholars and constitute a praiseworthy discipline. By virtue of knowledge derived from this study, we can determine the eclipse of the planets, the time of its occurrence in different places, the reason why the moon appears first as a bow gradually increasing until it reaches its full size and then reverts to its original size, as well as the time of its appearance and disappearance.

This science further explains why one day is longer than another; why two stars appear to rise together but set separately; why the duration of the daytime in one place lasts thirteen hours and in another fifteen, sixteen, or twenty; or why both day and night are forever equal in one place while in another the day lasts a month, two, three, or six months so that the year is equally divided between six daylight months or six sunless months. There are many other related matters we can learn from this wisdom, which is without any doubt authentic. This is the science of mathematical astronomy, which our sages confirmed to be the true wisdom in the sight of the people. But the theories of the astrologists are devoid of any value.

Accordingly, I shall presently proceed to expound philosophically upon these secret matters in outline form. You should know that all philosophers who are men of wisdom and science agree that the world has a Ruler who is the Prime Mover and that the sphere is not self-moving. For this they have conclusive evidence and clear proof which no one refutes. Differences among them arise only with reference to the nature of the existence of the sphere and its properties. Many contend that the universe is not transient but eternal. Just like God who is its Prime Mover is eternal, so the moved object never exists without the other. Others maintain that the universe is transient and the Creator brought it into existence out of a primeval stuff co-existent with the Creator like clay in the hand of a potter. Out of a portion of the primeval matter He fashioned the heaven and out of another part the earth, and at another

time as a result of His Will, He may mould out of the stuff He originally fashioned the celestial sphere another phenomenon. But creatio ex-nihilo they maintain is impossible.

Other philosophers, however, in consonance with our prophets, project the theory of creatio ex-nihilo and assert that the Creator had no co-existent matter but created all that exists from nothing. The wide differences among philosophers centered on this question as our patriarch Abraham apprehended. Countless books were written containing convincing arguments in support of each theory. The basic principle of our Torah is that the Creator is the First and Last and that there is no one besides Him and that He created all from nothing. One who does not acknowledge this is a heretic and a destroyer of his faith. I have compiled a large work in Arabic on these matters and formulated with valid demonstration and clear proof the existence, authentic unity and incorporeality, in the sense of a physical body or a force in a corporeal body, of the Creator. In addition, I have repudiated the contrary claims of the philosophers on the eternity of the universe and resolved the various questions pertaining to our theory of creatio ex-nihilo.

Now, the aforementioned three sects of philosophers from ancient times to the present day — those who maintain that co-existent with the Creator was a primeval matter, our prophets who denied eternal matter and stressed God's unity who created the world with His Will out of nothing, and finally the eternalists who asserted that the universe was neither created nor transient but existed eternally, moved by the Prime Mover so that the mover and the moved always exist simultaneously — all agree, however, that existence in the sublunar world from living beings, vegetation and minerals, God created through the motion of the spheres and the stars. The spirit of God at first hovered above the spheres and stars and later through them radiated and expanded in this world and brought into being all existence. Just as we maintain that the Almighty performs miracles and wonders through angels, so these philosophers ascribe similar potency to the spheres and stars who are also endowed with life and intellect and are responsible for the existing order of things of nature. The claims of the philosophers are correct and as I have already elucidated with conclusive proof that not only are they not damaging to religious beliefs but as is apparent from the midrashic statements of our sages, there is no dichotomy between them and the philosophers on these matters.

Now, the three sects of philosophers who concurred on the creative faculty of the spheres and the stars also maintained that casual events befalling individual people are the result of accident and chance and not caused from on high, or from man's nativity or his natural endowment. They see no difference between a human being torn by a lion, and a mouse killed by a cat, or a fly by a spider. Nor do they distinguish between a person fatally struck by a fallen rock and a stone torn off a hill falling upon a tree or another stone and breaking them. Both are the result of chance. By the same token the philosophers hold that bellicose activities carried on by warring people against each other for the sake of enhancement of their respective kingdoms are the result of the constellations as much as a horde of dogs fighting over a dried out carcass. On the other hand, the fate of one's personal fortune reflected in material well-being or progeny is left to chance. The general principle they lay down is that events occurring to individual members of the human, animal, mineral or plant species are the result of accident, whereas for the species including inanimate genera, the determination of their fate comes from spheres and stars derived from the Almighty. This is the point of contention. We who follow the authentic teachings of the Torah affirm that events befalling men are the result not of accident, but of God's justice as we read: "He is the Rock, His work is perfect; for all His ways are just" (Dent. 32:4). The prophet comments: "Thou whose eyes are open over all the ways of the sons of men; to give unto everyone according to his ways and according to the fruits of his deed" (Jer. 32:9). The Torah further admonishes and bears witness to this fact when it states: "But if you will not hearken unto me" I will administer punishment unto you. Should one, however, maintain that these punishments are not inflicted on account of sins committed, but are simply casual events which occur accidentally, we are admonished that the Almighty will keep on increasing similar "events" as we read: "But if you will walk contrary unto me then I will also walk contrary unto you..." (Lev. 26: 21). It is a fundamental doctrine of the Law of Moses, that all events that happen in the world and suffering that befalls collective man are the result of strict judgment. Our sages indicated this when they said: "There is no death without sin nor suffering without iniquity" (Babylonian Talmud Shabbat 55).

You should know further my masters that another fundamental assumption of our faith, concurred by the philosophers, is that man is morally responsible for all of his activities and there is no heteronomous force to determine his actions. He is free to worship God always and pursue his studies to acquire wisdom or to follow the counsel of the wicked and engage in theft and adultery. And since no natural endowment or the accident of one's birth is responsible for one's pursuits, we were commanded and admonished to act in a certain prescribed way as I have indicated in my Arabic work (The Guide) or the Commentary on the Mishnah as well as my other works.

Accordingly, we have rational proofs that the vicissitudes that befall man are different from those that occur to animals, as the philosophers maintain. For as we find there are three divergent groups in this regard. First the opinion of the philosophers who argue that if, for instance, Reuben was an impoverished tanner whose children died during his lifetime while Simeon was an affluent pharmacist with children. And then suddenly the wheels of his fortune turned and he suffered reverses and became like Reuben. All this the philosophers maintain was due to pure chance. For no natural force in the world, not the potency of the stars, was responsible for the divergent fates of both men.

A second group consists of the astrologers whom you have heard disseminating their irrational folly among you to the effect that it is impossible for anything to undergo a reversal in this world inasmuch as one's fate is sealed by the stars at the time of birth. Hence Reuben was destined to remain forever in his inferior state while Simeon in a more exalted position.

To be sure both assumptions are false in the light of our true faith. The position of the astrologers has been proved to be groundless by science as well as by theonomy. For if man's life is predestined by an external force that coercively casts him into a frozen mould or impels him to act in a certain way without his own choice, then of what value are the precepts and the teachings of the Torah? It would appear thus that their views are not only invalidated by scientific thought with the same proofs employed by the philosophers against the notions of the Chaldeans and their associates, but in their folly the astrologers tend to reject the Mosaic Law.

By the same token the concepts of the philosophers that everything comes upon us by accident is false in accordance with the dictates of our Torah which we follow scrupulously and rely upon. We affirm that the incidents pertaining to Reuben and Simeon respectively with regard to their financial position and their reverses are not accidental, but a result of the Creator's Will in keeping with strict justice. To be sure we cannot apprehend the ultimate wisdom of the Holy One which would enable us to ascertain by what measure He decrees the fate of each person. For our ways are not His; nor our thoughts His. It behooves us, however, to affirm that if Simeon sins, he will be punished and suffer financial and family deprivation. On the other hand, if Reuben repents and mends his ways he will prosper in all his pursuits, in substance, progeny and duration of life. This is a fundamental principle of the Torah. The fact that many virtuous people do not prosper should not lead one to question our thesis for any misfortune visited upon them may be due either to some iniquities committed by them of which we were not aware or should be construed as a test and a stepping stone to something better in the future. A general principle to hold on to is that our finite mind cannot comprehend the nature of the Creator's judgment of mankind in this world or the hereafter. With abiding conviction we can only affirm the principle validated by men of science that all the assumptions of the astrologers are false.

I am aware that it is possible to find some individual opinions of our sages in the Talmud, the Mishnah and Midrashim supporting astrological assumptions about the potency of the stars at a man's nativity. This should not be disturbing to you inasmuch as we must never abandon practical Halachah for the sake of upholding dialectical arguments. Moreover, it is not feasible to surrender demonstrative rational knowledge and embrace the opinion of one individual sage who might have missed a crucial point at that time or he may have proffered an allegorical remark not to be taken literally or that his statement was meant as a temporary measure referring to a specific incident. For is it not apparent that many statements of the Torah cannot be taken literally but, as is clear from scientific evidence, require interpretation that will make them acceptable to rational thought? Our eyes are set in the front and not in the back. One should therefore look ahead of him and not behind him. I have thus revealed to you with these words my whole heart.

2) Rambam, Shemoneh Perakim, ch. 8

ולא בררתי לך זה, אלא כדי שלא תחשוב את ההזיות, כזבי הוברי השמים, לאמיתיות. כי יאמרו, שרגע הולדת האנשים עושה אותם בעלי מעלה או בעלי פחיתות, והמעשים נגזרים על האיש בעל כורחו. ואתה דע, שדבר שהסכימו עליו תורתנו ופלספת יון, ואישרוהו מופתי האמת הוא, שמעשי האדם מסורים לו, אין כופה אותו בהם, ואין לא שום מניע לו מן החוץ, שיטהו למעלה או לפחיתות, חוץ מן ההכנה המיזגית בלבד, כפי שבארנו, שמקילה עליו דבר או מכבידה; אבל שיהיה מחויב או נמנע, לא.

And I did not clarify this to you except so that you should not think the illusions, like the lies of those who practice astrology, to be truths. For they say that the moment of a person's birth makes them have certain virtues or deficiencies, and the deeds are determined on the person against his will. And you should know that a matter upon which our Torah and Greek philosophy agreed, and which is validated by clear truths, is that a person's deeds are entrusted to him; no one forces him in them, and there is no external cause for him from outside that directs him to virtue or to deficiency, except for the natural temperamental predisposition alone, as we have explained, that [makes free choice in a given matter] easier or more difficult for him; but that he would be compelled or prevented – this is not so.